


STATE OF UTAH DEPARTMENT OF NATURAL RESOURCES DIVISION OF OIL, GAS AND MINING						FORM 3 AMENDED REPORT <input type="checkbox"/>				
<b>APPLICATION FOR PERMIT TO DRILL</b>						<b>1. WELL NAME and NUMBER</b> NBU 1021-2901CS				
<b>2. TYPE OF WORK</b> DRILL NEW WELL <input checked="" type="checkbox"/> REENTER P&A WELL <input type="checkbox"/> DEEPEN WELL <input type="checkbox"/>						<b>3. FIELD OR WILDCAT</b> NATURAL BUTTES				
<b>4. TYPE OF WELL</b> Gas Well Coalbed Methane Well: NO						<b>5. UNIT or COMMUNITIZATION AGREEMENT NAME</b> NATURAL BUTTES				
<b>6. NAME OF OPERATOR</b> KERR-MCGEE OIL & GAS ONSHORE, L.P.						<b>7. OPERATOR PHONE</b> 720 929-6515				
<b>8. ADDRESS OF OPERATOR</b> P.O. Box 173779, Denver, CO, 80217						<b>9. OPERATOR E-MAIL</b> julie.jacobson@anadarko.com				
<b>10. MINERAL LEASE NUMBER (FEDERAL, INDIAN, OR STATE)</b> ML 21330			<b>11. MINERAL OWNERSHIP</b> FEDERAL <input type="checkbox"/> INDIAN <input type="checkbox"/> STATE <input checked="" type="checkbox"/> FEE <input type="checkbox"/>			<b>12. SURFACE OWNERSHIP</b> FEDERAL <input type="checkbox"/> INDIAN <input type="checkbox"/> STATE <input checked="" type="checkbox"/> FEE <input type="checkbox"/>				
<b>13. NAME OF SURFACE OWNER (if box 12 = 'fee')</b>						<b>14. SURFACE OWNER PHONE (if box 12 = 'fee')</b>				
<b>15. ADDRESS OF SURFACE OWNER (if box 12 = 'fee')</b>						<b>16. SURFACE OWNER E-MAIL (if box 12 = 'fee')</b>				
<b>17. INDIAN ALLOTTEE OR TRIBE NAME (if box 12 = 'INDIAN')</b>			<b>18. INTEND TO COMMINGLE PRODUCTION FROM MULTIPLE FORMATIONS</b> YES <input checked="" type="checkbox"/> (Submit Commingling Application) NO <input type="checkbox"/>			<b>19. SLANT</b> VERTICAL <input type="checkbox"/> DIRECTIONAL <input checked="" type="checkbox"/> HORIZONTAL <input type="checkbox"/>				
<b>20. LOCATION OF WELL</b>	<b>FOOTAGES</b>		<b>QTR-QTR</b>	<b>SECTION</b>	<b>TOWNSHIP</b>	<b>RANGE</b>	<b>MERIDIAN</b>			
<b>LOCATION AT SURFACE</b>	1984 FSL 418 FEL		NESE	29	10.0 S	21.0 E	S			
<b>Top of Uppermost Producing Zone</b>	837 FSL 1849 FEL		SWSE	29	10.0 S	21.0 E	S			
<b>At Total Depth</b>	837 FSL 1849 FEL		SWSE	29	10.0 S	21.0 E	S			
<b>21. COUNTY</b> UINTAH			<b>22. DISTANCE TO NEAREST LEASE LINE (Feet)</b> 837		<b>23. NUMBER OF ACRES IN DRILLING UNIT</b> 640					
			<b>25. DISTANCE TO NEAREST WELL IN SAME POOL (Applied For Drilling or Completed)</b> 1694		<b>26. PROPOSED DEPTH</b> MD: 9617 TVD: 9254					
<b>27. ELEVATION - GROUND LEVEL</b> 5256			<b>28. BOND NUMBER</b> 22013542		<b>29. SOURCE OF DRILLING WATER / WATER RIGHTS APPROVAL NUMBER IF APPLICABLE</b> Permit #43-8496					
<b>Hole, Casing, and Cement Information</b>										
<b>String</b>	<b>Hole Size</b>	<b>Casing Size</b>	<b>Length</b>	<b>Weight</b>	<b>Grade &amp; Thread</b>	<b>Max Mud Wt.</b>	<b>Cement</b>	<b>Sacks</b>	<b>Yield</b>	<b>Weight</b>
<b>Surf</b>	11	8.625	0 - 2020	28.0	J-55 LT&C	0.2	Type V	180	1.15	15.8
							Class G	270	1.15	15.8
<b>Prod</b>	7.875	4.5	0 - 9617	11.6	I-80 Buttruss	12.5	Premium Lite High Strength	260	3.38	11.0
							50/50 Poz	1150	1.31	14.3
<b>ATTACHMENTS</b>										
<b>VERIFY THE FOLLOWING ARE ATTACHED IN ACCORDANCE WITH THE UTAH OIL AND GAS CONSERVATION GENERAL RULES</b>										
<input checked="" type="checkbox"/> WELL PLAT OR MAP PREPARED BY LICENSED SURVEYOR OR ENGINEER					<input checked="" type="checkbox"/> COMPLETE DRILLING PLAN					
<input type="checkbox"/> AFFIDAVIT OF STATUS OF SURFACE OWNER AGREEMENT (IF FEE SURFACE)					<input type="checkbox"/> FORM 5. IF OPERATOR IS OTHER THAN THE LEASE OWNER					
<input checked="" type="checkbox"/> DIRECTIONAL SURVEY PLAN (IF DIRECTIONALLY OR HORIZONTALLY DRILLED)					<input checked="" type="checkbox"/> TOPOGRAPHICAL MAP					
<b>NAME</b> Danielle Piernot			<b>TITLE</b> Regulatory Analyst			<b>PHONE</b> 720 929-6156				
<b>SIGNATURE</b>			<b>DATE</b> 03/11/2011			<b>EMAIL</b> danielle.piernot@anadarko.com				
<b>API NUMBER ASSIGNED</b> 43047515300000			<b>APPROVAL</b> <div style="text-align: center;">             Permit Manager         </div>							

**Kerr-McGee Oil & Gas Onshore. L.P.****NBU 1021-29O1CS**

Surface: 1984 FSL / 418 FEL NESE  
BHL: 837 FSL / 1849 FEL SWSE

Section 29 T10S R21E

Unitah County, Utah  
Mineral Lease: UT ST ML 21330

**ONSHORE ORDER NO. 1****DRILLING PROGRAM**

1. & 2. **Estimated Tops of Important Geologic Markers:**  
**Estimated Depths of Anticipated Water, Oil, Gas, or Mineral Formations:**

<u>Formation</u>	<u>Depth</u>	<u>Resource</u>
Uinta	0 - Surface	
Green River	945	
Birds Nest	1218	Water
Mahogany	1572	Water
Wasatch	4150	Gas
Mesaverde	7019	Gas
MVU2	7985	Gas
MVL1	8489	Gas
TVD	9254	
TD	9617	

3. **Pressure Control Equipment** (Schematic Attached)

*Please refer to the attached Drilling Program*

4. **Proposed Casing & Cementing Program:**

*Please refer to the attached Drilling Program*

5. **Drilling Fluids Program:**

*Please refer to the attached Drilling Program*

6. **Evaluation Program:**

*Please refer to the attached Drilling Program*

7. **Abnormal Conditions:**

Maximum anticipated bottom hole pressure calculated at 9254' TVD, approximately equals  
6,108 psi 0.64 psi/ft = actual bottomhole gradient

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Maximum Anticipated Bottom Hole Pressure (MABHP) = Pore Pressure at TD

Maximum anticipated surface pressure equals approximately 3,874 psi (bottom hole pressure  
minus the pressure of a partially evacuated hole calculated at 0.22 psi/foot, per Onshore Order No. 2).

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Per Onshore Order No. 2 - Max Anticipated Surf. Press.(MASP) = (Pore Pressure at next csg point-  
(0.22 psi/ft-partial evac gradient x TVD of next csg point))

8. **Anticipated Starting Dates:**

*Drilling is planned to commence immediately upon approval of this application.*

9. **Variances:**

*Please refer to the attached Drilling Program.  
Onshore Order #2 – Air Drilling Variance*

*Kerr-McGee Oil & Gas Onshore LP (KMG) respectfully requests a variance to several requirements  
associated with air drilling outlined in Onshore Order 2*

- *Blowout Prevention Equipment (BOPE) requirements;*
- *Mud program requirements; and*
- *Special drilling operation (surface equipment placement) requirements associated  
with air drilling.*

*This Standard Operating Practices addendum provides supporting information as to why KMG current  
air drilling practices for constructing the surface casing hole should be granted a variance to Onshore  
Order 2 air drilling requirements.*

*The reader should note that the air rig is used only to construct a stable surface casing hole through a  
historically difficult lost circulation zone. A conventional rotary rig follows the air rig, and is used to  
drill and construct the majority of the wellbore.*

*More notable, KMG has used the air rig layout and procedures outlined below to drill the surface casing  
hole in approximately 675 wells without incident of blow out or loss of life.*

**Background**

*In a typical well, KMG utilizes an air rig for drilling the surface casing hole, an interval from the  
surface to surface casing depths, which varies in depth from 1,700 to 2,800 feet. The air rig drilling  
operation does not drill through productive or over pressured formations in KMG field, but does  
penetrate the Uinta and Green River Formations. The purpose of the air drilling operation is to overcome  
the severe loss circulation zone in the Green River known as the Bird's Nest while creating a stable hole  
for the surface casing. The surface casing hole is generally drilled to approximately 500 feet below the  
Bird's Nest.*

*Before the surface air rig is mobilized, a rathole rig is utilized to set and cement conductor pipe through a competent surface formation. Generally, the conductor is set at 40 feet. In some cases, conductor may be set deeper in areas that the surface formation is not found competent. This rig also drills the rat and mouse holes in preparation for the surface casing and production string drilling operations.*

*The air rig is then mobilized to drill the surface casing hole by drilling a 11 inch hole to just above the Bird's Nest interval with an air hammer. The hammer is then tripped and replaced with a 11 inch tri-cone bit. The tri-cone bit is used to drill to the surface casing point, approximately 500 feet below the loss circulation zone (Bird's Nest). The 8-5/8 inch surface casing is then run and cemented in place, thereby isolating the lost circulation zone.*

*KMG fully appreciates Onshore Order 2 well control and safety requirements associated with a typical air drilling operations. However, the requirements of Onshore Order 2 are excessive with respect to the air rig layout and drilling operation procedures that are currently in practice to drill and control the surface casing hole in KMG Fields.*

***Variance for BOPE Requirements***

*The air rig operation utilizes a properly lubricated and maintained air bowl diverter system which diverts the drilling returns to a six-inch blooie line. The air bowl is the only piece of BOPE equipment which is installed during drilling operations and is sufficient to contain the air returns associated with this drilling operation. As was discussed earlier, the drilling of the surface hole does not encounter any over pressured or productive zones, and as a result standard BOPE equipment should not be required. In addition, standard drilling practices do not support the use of BOPE on 40 feet of conductor pipe.*

***Variance for Mud Material Requirements***

*Onshore Order 2 also states that sufficient quantities of mud materials shall be maintained or readily accessible for the purpose of assuring adequate well control. Once again, the surface hole drilling operations does not encounter over pressured or productive intervals, and as a result there is not a need to control pressure in the surface hole with a mud system. Instead of mud, the air rigs utilize water from the reserve pit for well control, if necessary. A skid pump which is located near the reserve pit (see attachment) will supply the water to the well bore.*

***Variance for Special Drilling Operation (surface equipment placement) Requirements***

*Onshore Order 2 requires specific safety distances or setbacks for the placement of associated standard air drilling equipment, wellbore, and reserve pits. The air rigs used to drill the surface holes are not typical of an air rig used to drill a producing hole in other parts of the US. These are smaller in nature and designed to fit a KMG location. The typical air rig layout for drilling surface hole in the field is attached.*

*Typically the blooie line discharge point is required to be 100 feet from the well bore. In the case of a KMG well, the reserve pit is only 45 feet from the rig and is used for the drill cuttings. The blooie line, which transports the drill cuttings from the well to the reserve pit, subsequently discharges only 45 feet from the well bore.*

*Typically the air rig compressors are required to be located in the opposite direction from the blooie line and a minimum of 100 feet from the well bore. At the KMG locations, the air rig compressors are approximately 40 feet from the well bore and approximately 60 feet from the blooie line discharge due to the unique air rig design. The air compressors (see attachment) are located on the rig (1250 cfm) and*



*on a standby trailer (1170 cfm). A booster sits between the two compressors and boosts the output from 350 psi to 2000 psi. The design does put the booster and standby compressor opposite from the blooie line.*

*Lastly, Onshore Order 2 addresses the need for an automatic igniter or continuous pilot light on the blooie line. The air rig does not utilize an igniter as the surface hole drilling operation does not encounter productive formations.*

***Conclusion***

*The air rig operating procedures and the attached air rig layout have effectively maintained well control while drilling the surface holes in KMG Fields. KMG respectfully requests a variance from Onshore Order 2 with respect to air drilling well control requirements as discussed above.*

10. **Other Information:**

*Please refer to the attached Drilling Program.*

COMPANY NAME	KERR-McGEE OIL & GAS ONSHORE LP					DATE	February 10, 2011		
WELL NAME	<b>NBU 1021-2901CS</b>					TD	9,254'	TVD	9,617' MD
FIELD	Natural Buttes		COUNTY	Uintah	STATE	Utah	FINISHED ELEVATION		5255.6
SURFACE LOCATION	NESE	1984 FSL	418 FEL	Sec 29	T 10S	R 21E			
	Latitude:	39.91676	Longitude:	-109.566809		NAD 27			
BTM HOLE LOCATION	SWSE	837 FSL	1849 FEL	Sec 29	T 10S	R 21E			
	Latitude:	39.913602	Longitude:	-109.571841		NAD 27			
OBJECTIVE ZONE(S)	Wasatch/Mesaverde								
ADDITIONAL INFO	Regulatory Agencies: UDOGM (Minerals), UDOGM (Surface), UDOGM Tri-County Health Dept.								

GEOLOGICAL			MECHANICAL		
LOGS	FORMATION TOPS	DEPTH	HOLE SIZE	CASING SIZE	MUD WEIGHT
		40'		14"	
			11'	8-5/8", 28#, IJ-55, LTC	Air mist
<p>All water flows encountered while drilling will be reported to the appropriate agencies.</p>					
	Green River @	0,945'			
	Top of Birds Nest @	1,218'			
	Mahogany @	1,572'			
	Preset f/ GL @	2,020'			
	MD				
<p>Note: 11" surface hole will usually be drilled ±400' below the lost circulation zone (aka bird's nest). Drilled depth may be ±200' of the estimated set depth depending on the actual depth of the loss zone.</p>					
	Wasatch @	4,150'			
<p>Mud logging program TBD Cased hole logging program from TD - surf csg</p>					
			7-7/8"	4-1/2" 11.6# I-80 or equivalent BTC csg	Water / Fresh Water Mud 8.3-12.5 ppg
	Mverde @	7,019' TVD			
	MVU2 @	7,985' TVD			
	MVU1 @	8,489' TVD			
<p>Max anticipated Mud required 12.5 ppg</p>					
	TD @	9,254' TVD 9,617' MD			



## KERR-McGEE OIL & GAS ONSHORE LP

### DRILLING PROGRAM

#### CASING PROGRAM

	SIZE	INTERVAL	WT.	GR.	CPLG.	DESIGN FACTORS		
						BURST	COLLAPSE	TENSION
CONDUCTOR	14"	0-40'				3,390	1,880	348,000
SURFACE	8-5/8"	0 to 2,020	28.00	IJ-55	LTC	2.68	1.99	6.09
						7,780	6,350	367,000
PRODUCTION	4-1/2"	0 to 9,617	11.60	I-80	BTC	1.11	1.06	4.07

#### Surface Casing:

(Burst Assumptions: TD = 12.5 ppg)

0.73 psi/ft = frac gradient @ surface shoe

Fracture at surface shoe with 0.1 psi/ft gas gradient above

(Collapse Assumption: Fully Evacuated Casing, Max MW)

(Tension Assumptions: Air Weight of Casing\*Buoy.Fact. of water)

#### Production casing:

(Burst Assumptions: Pressure test with 8.4ppg @ 7000 psi)

0.64 psi/ft = bottomhole gradient

(Collapse Assumption: Fully Evacuated Casing, Max MW)

(Tension Assumptions: Air Weight of Casing\*Buoy.Fact. of water)

#### CEMENT PROGRAM

		FT. OF FILL	DESCRIPTION	SACKS	EXCESS	WEIGHT	YIELD
SURFACE	LEAD	500'	Premium cmt + 2% CaCl	180	60%	15.80	1.15
Option 1			+ 0.25 pps flocele				
	TOP OUT CMT (6 jobs)	1,200'	20 gals sodium silicate + Premium cmt	270	0%	15.80	1.15
			+ 2% CaCl + 0.25 pps flocele				
SURFACE		NOTE: If well will circulate water to surface, option 2 will be utilized					
Option 2	LEAD	1,520'	65/35 Poz + 6% Gel + 10 pps gilsonite	140	35%	11.00	3.82
			+ 0.25 pps Flocele + 3% salt BWOW				
	TAIL	500'	Premium cmt + 2% CaCl	150	35%	15.80	1.15
			+ 0.25 pps flocele				
	TOP OUT CMT	as required	Premium cmt + 2% CaCl	as req.		15.80	1.15
PRODUCTION	LEAD	3,647'	Premium Lite II +0.25 pps	260	10%	11.00	3.38
			celloflake + 5 pps gilsonite + 10% gel				
			+ 0.5% extender				
	TAIL	5,970'	50/50 Poz/G + 10% salt + 2% gel	1,150	10%	14.30	1.31
			+ 0.1% R-3				

\*Substitute caliper hole volume plus 0% excess for LEAD if accurate caliper is obtained

\*Substitute caliper hole volume plus 10% excess for TAIL if accurate caliper is obtained

#### FLOAT EQUIPMENT & CENTRALIZERS

SURFACE	Guide shoe, 1 jt, insert float. Centralize first 3 joints with bow spring centralizers. Thread lock guide shoe
PRODUCTION	Float shoe, 1 jt, float collar. No centralizers will be used.

#### ADDITIONAL INFORMATION

Test casing head to 750 psi after installing. Test surface casing to 1,500 psi prior to drilling out.

BOPE: 11" 5M with one annular and 2 rams. The BOPE will be installed before the production hole is drilled and tested to 5,000 psi (annular to 2,500 psi) prior to drilling out the surface casing shoe. Record on chart recorder and tour sheet. Function test rams on each trip. Maintain safety valve and inside BOP on rig floor at all times. Most rigs have top drives; however, if used, the Kelly is to be equipped with upper and lower kelly valves.

Surveys will be taken at 1,000' minimum intervals.

Most rigs have PVT System for mud monitoring. If no PVT is available, visual monitoring will be utilized.

#### DRILLING ENGINEER:

Nick Spence / Emile Goodwin

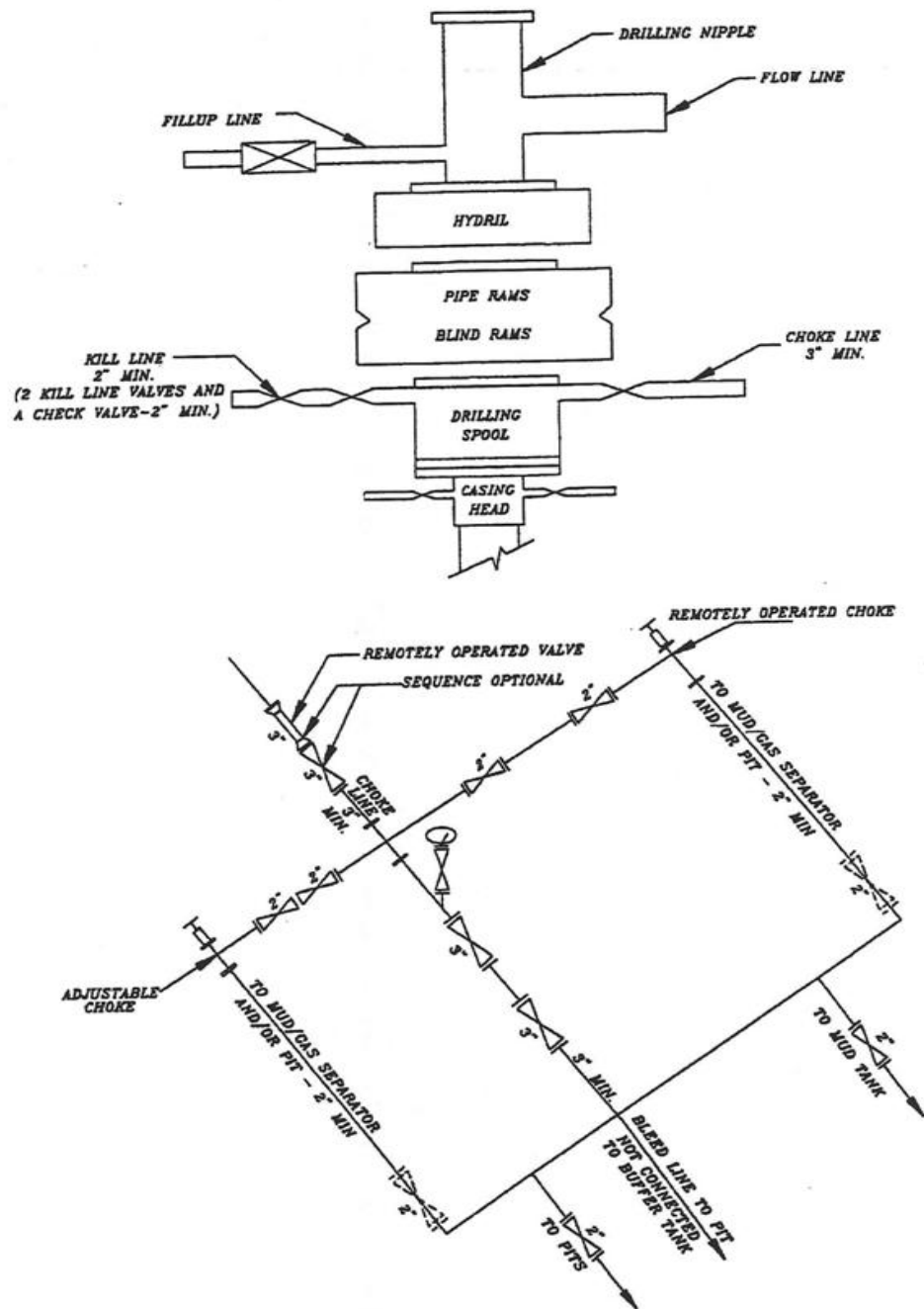
DATE: \_\_\_\_\_

#### DRILLING SUPERINTENDENT:

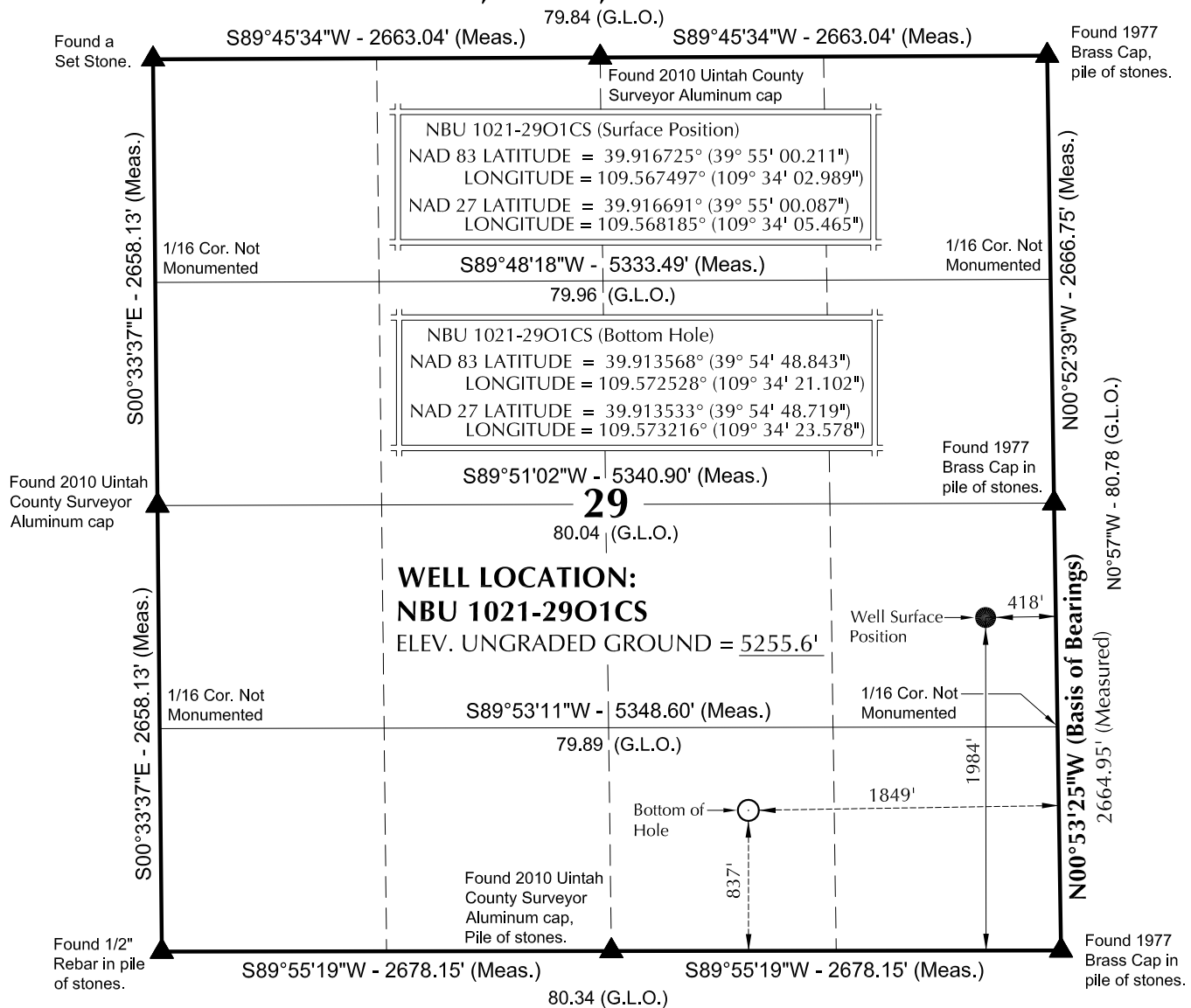
Kenny Gathings / Lovel Young

DATE: \_\_\_\_\_

EXHIBIT A  
NBU 1021-2901CS



SCHEMATIC DIAGRAM OF 5,000 PSI BOP STACK

**T10S, R21E, S.L.B.&M.****NOTES:**

▲ = Section Corners Located

- Well footages are measured at right angles to the Section Lines.
- G.L.O. distances are shown in feet or chains.  
1 chain = 66 feet.
- The Bottom of hole bears S50°53'15"W 1821.20' from the Surface Position.
- Bearings are based on Global Positioning Satellite observations.
- Basis of elevation is Tri-Sta "Two Water" located in the NW  $\frac{1}{4}$  of Section 1, T10S, R21E, S.L.B.&M. The elevation of this Tri-Sta is shown on the Big Pack Mtn NE 7.5 Min. Quadrangle as being 5238'.

**Kerr-McGee Oil & Gas Onshore, LP**  
1099 18th Street - Denver, Colorado 80202

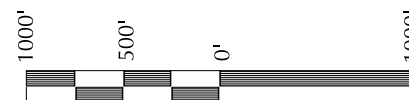
**WELL PAD: NBU 1021-291**

**NBU 1021-2901CS**  
**WELL PLAT**

**837' FSL, 1849' FEL (Bottom Hole)**

**SW  $\frac{1}{4}$  SE  $\frac{1}{4}$  OF SECTION 29, T10S, R21E,**  
**S.L.B.&M., UTAH COUNTY, UTAH.**

**CONSULTING, LLC**  
2155 North Main Street  
Sheridan WY 82801  
Phone 307-674-0609  
Fax 307-674-0182



SCALE

**SURVEYOR'S CERTIFICATE**

THIS IS TO CERTIFY THAT THE ABOVE PLAT WAS PREPARED FROM FIELD NOTES OF ACTUAL SURVEYS MADE BY ME OR UNDER MY SUPERVISION AND THAT THE SAME ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

*John R. Maugh*  
No. 6028691  
JOHN R. MAUGH  
PROFESSIONAL LAND SURVEYOR  
REGISTRATION NO. 6028691  
STATE OF UTAH

**TIMBERLINE**

(435) 789-1365

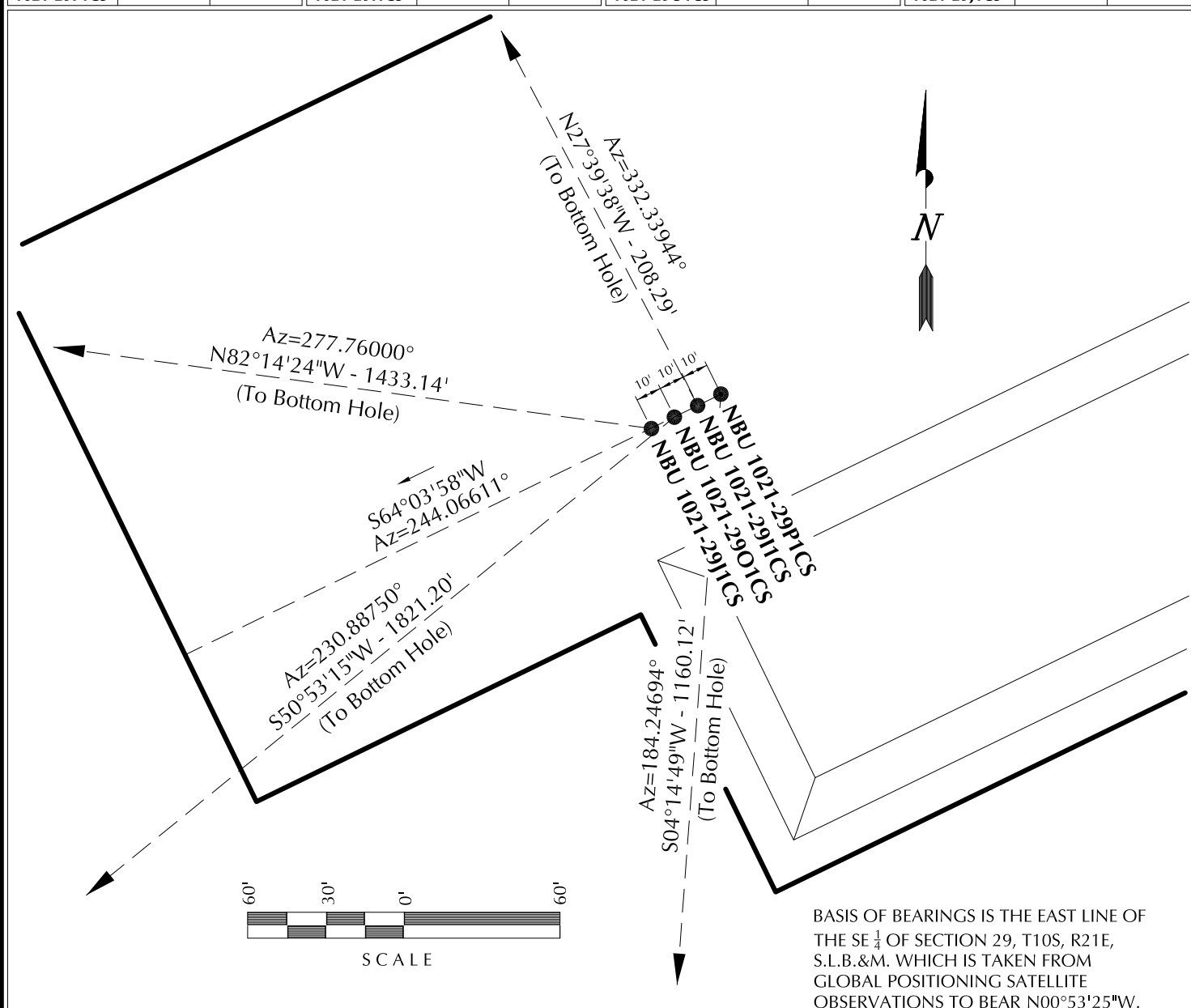
ENGINEERING & LAND SURVEYING, INC.  
209 NORTH 300 WEST - VERNAL, UTAH 84078

DATE SURVEYED: 10-29-10	SURVEYED BY: D.J.S.	SHEET NO: <b>3</b> 3 OF 16
DATE DRAWN: 11-08-10	DRAWN BY: B.M.	
SCALE: 1" = 1000'	Date Last Revised:	

WELL NAME	SURFACE POSITION					BOTTOM HOLE				
	NAD83		NAD27		FOOTAGES	NAD83		NAD27		FOOTAGES
	LATITUDE	LONGITUDE	LATITUDE	LONGITUDE		LATITUDE	LONGITUDE	LATITUDE	LONGITUDE	
NBU 1021-29P1CS	39°55'00.299"	109°34'02.759"	39°55'00.424"	109°34'00.284"	1993' FSL	39°54'48.868"	109°34'03.844"	39°54'48.992"	109°34'01.369"	836' FSL
	39.916750°	109.567433°	39.916784°	109.566745°	400' FEL	39.913574°	109.567734°	39.913609°	109.567047°	504' FEL
NBU 1021-29I1CS	39°55'00.255"	109°34'02.874"	39°55'00.380"	109°34'00.399"	1988' FSL	39°55'02.077"	109°34'04.118"	39°55'02.202"	109°34'01.642"	2173' FSL
	39.916738°	109.567465°	39.916772°	109.566777°	409' FEL	39.917244°	109.567810°	39.917278°	109.567123°	503' FEL
NBU 1021-29O1CS	39°55'00.211"	109°34'02.989"	39°55'00.336"	109°34'00.514"	1984' FSL	39°54'48.843"	109°34'21.102"	39°54'48.968"	109°34'18.627"	837' FSL
	39.916725°	109.567497°	39.916760°	109.566809°	418' FEL	39.913568°	109.572528°	39.913602°	109.571841°	1849' FEL
NBU 1021-29J1CS	39°55'00.167"	109°34'03.103"	39°55'00.292"	109°34'00.628"	1980' FSL	39°55'02.063"	109°34'21.326"	39°55'02.187"	109°34'18.850"	2175' FSL
	39.916713°	109.567529°	39.916748°	109.566841°	427' FEL	39.917240°	109.572591°	39.917274°	109.571903°	1844' FEL

## RELATIVE COORDINATES - From Surface Position to Bottom Hole

WELL NAME	NORTH	EAST	WELL NAME	NORTH	EAST	WELL NAME	NORTH	EAST	WELL NAME	NORTH	EAST
NBU 1021-29P1CS	-1156.9'	-85.9'	NBU 1021-29I1CS	184.5'	-96.7'	NBU 1021-29O1CS	-1148.9'	-1413.1'	NBU 1021-29J1CS	193.5'	-1420.0'



**Kerr-McGee Oil & Gas Onshore, LP**  
1099 18th Street - Denver, Colorado 80202

## WELL PAD - NBU 1021-29I

**WELL PAD INTERFERENCE PLAT**  
WELLS - NBU 1021-29P1CS, NBU 1021-29I1CS,  
NBU 1021-29O1CS & NBU 1021-29J1CS  
LOCATED IN SECTION 29, T10S, R21E,  
S.L.B.&M., UINTAH COUNTY, UTAH.



**CONSULTING, LLC**  
2155 North Main Street  
Sheridan WY 82801  
Phone 307-674-0609  
Fax 307-674-0182

## TIMBERLINE

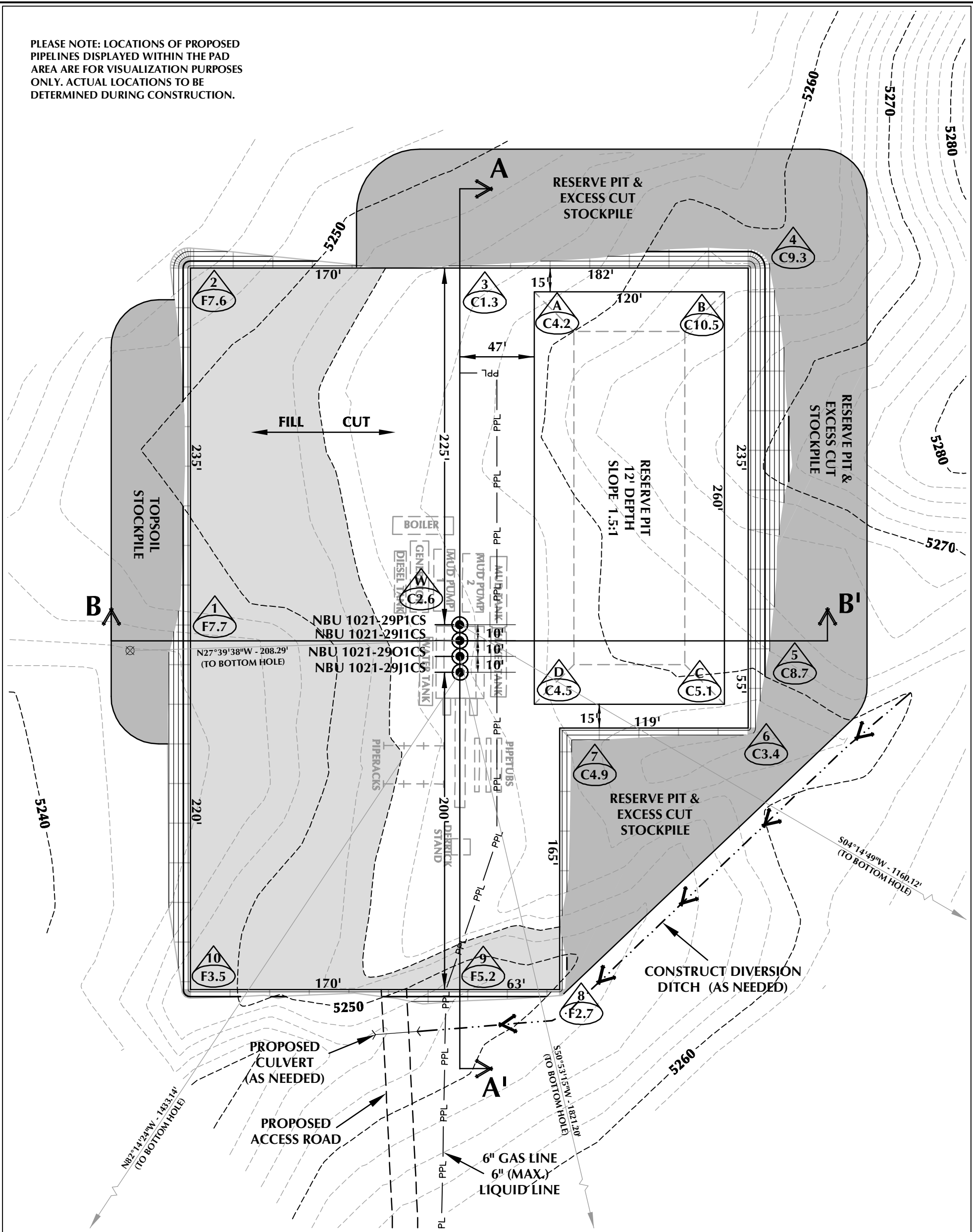
(435) 789-1365

ENGINEERING & LAND SURVEYING, INC.  
209 NORTH 300 WEST - VERNAL, UTAH 84078

DATE SURVEYED: 10-29-10	SURVEYED BY: D.J.S.	SHEET NO: <b>5</b> 5 OF 16
DATE DRAWN: 11-08-10	DRAWN BY: B.M.	
SCALE: 1" = 60'	Date Last Revised: 12-14-10 E.M.S.	



PLEASE NOTE: LOCATIONS OF PROPOSED PIPELINES DISPLAYED WITHIN THE PAD AREA ARE FOR VISUALIZATION PURPOSES ONLY. ACTUAL LOCATIONS TO BE DETERMINED DURING CONSTRUCTION.



WELL PAD - NBU 1021-29I DESIGN SUMMARY

EXISTING GRADE @ CENTER OF WELL PAD = 5255.6'  
FINISHED GRADE ELEVATION = 5253.0'  
CUT SLOPES = 1.5:1  
FILL SLOPES = 1.5:1  
TOTAL WELL PAD AREA = 3.57 ACRES  
TOTAL DAMAGE AREA = 6.28 ACRES  
SHRINKAGE FACTOR = 1.10  
SWELL FACTOR = 1.00

Kerr-McGee Oil & Gas Onshore, LP  
1099 18th Street - Denver, Colorado 80202

WELL PAD - NBU 1021-29I

WELL PAD - LOCATION LAYOUT  
NBU 1021-29P1CS, NBU 1021-29I1CS,  
NBU 1021-29O1CS & NBU 1021-29J1CS  
LOCATED IN SECTION 29, T10S, R21E,  
S.L.B.&M., UINTAH COUNTY, UTAH



CONSULTING, LLC  
2155 North Main Street  
Sheridan, WY 82801  
Phone 307-674-0609  
Fax 307-674-0182

WELL PAD QUANTITIES

TOTAL CUT FOR WELL PAD = 17,077 C.Y.  
TOTAL FILL FOR WELL PAD = 9,002 C.Y.  
TOPSOIL @ 6" DEPTH = 2,883 C.Y.  
EXCESS MATERIAL = 8,075 C.Y.

RESERVE PIT QUANTITIES

TOTAL CUT FOR RESERVE PIT  
+/- 11,020 C.Y.  
RESERVE PIT CAPACITY (2' OF FREEBOARD)  
+/- 42,290 BARRELS

TIMBERLINE  
ENGINEERING & LAND SURVEYING, INC.  
209 NORTH 300 WEST - VERNAL, UTAH 84078

(435) 789-1365

WELL PAD LEGEND

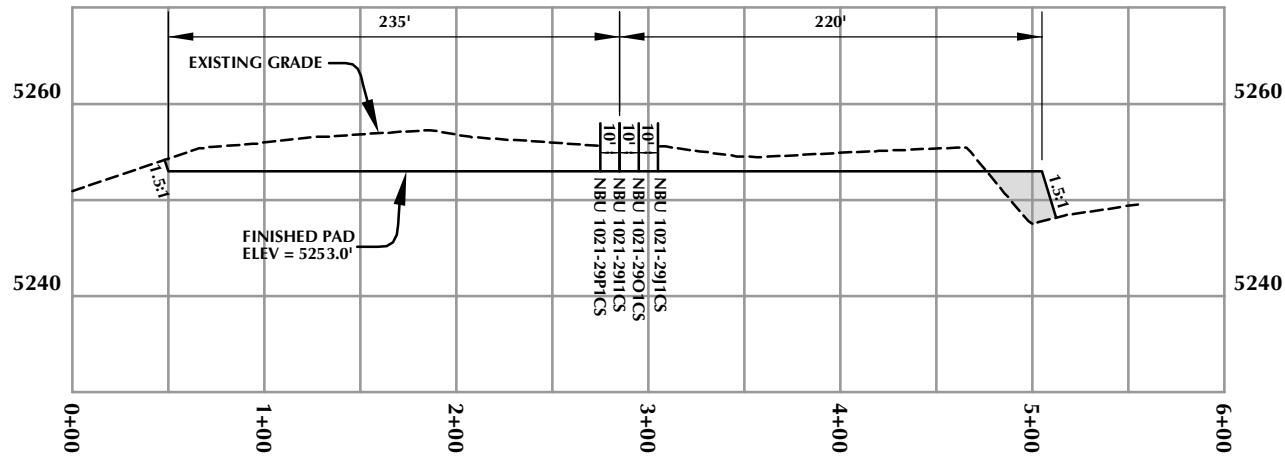
- EXISTING WELL LOCATION
- PROPOSED WELL LOCATION
- PROPOSED BOTTOM HOLE LOCATION
- EXISTING CONTOURS (2' INTERVAL)
- PROPOSED CONTOURS (2' INTERVAL)
- PPL - PROPOSED PIPELINE
- EPL - EXISTING PIPELINE



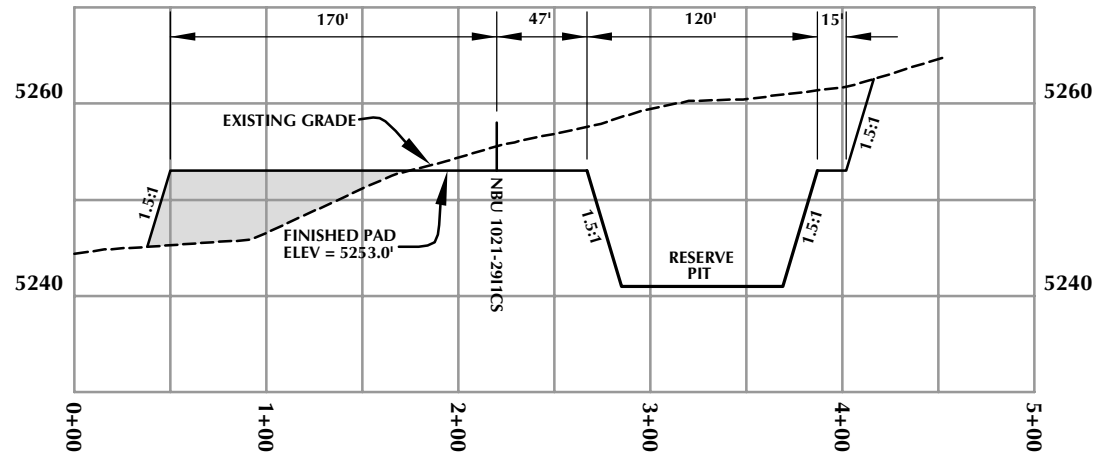
HORIZONTAL 0 30' 60' 1" = 60'  
2' CONTOURS

SCALE: 1"=60' DATE: 11/16/10 SHEET NO:

REVISED: 6 6 OF 16



**CROSS SECTION A-A'**



**CROSS SECTION B-B'**

**Kerr-McGee Oil & Gas Onshore, LP**  
1099 18th Street - Denver, Colorado 80202

**WELL PAD - NBU 1021-29I**

**WELL PAD - CROSS SECTIONS**  
NBU 1021-29P1CS, NBU 1021-29J1CS,  
NBU 1021-29O1CS & NBU 1021-29J1CS  
LOCATED IN SECTION 29, T10S, R21E,  
S.L.B.&M., UINTAH COUNTY, UTAH



**CONSULTING, LLC**  
2155 North Main Street  
Sheridan, WY 82801  
Phone 307-674-0609  
Fax 307-674-0182

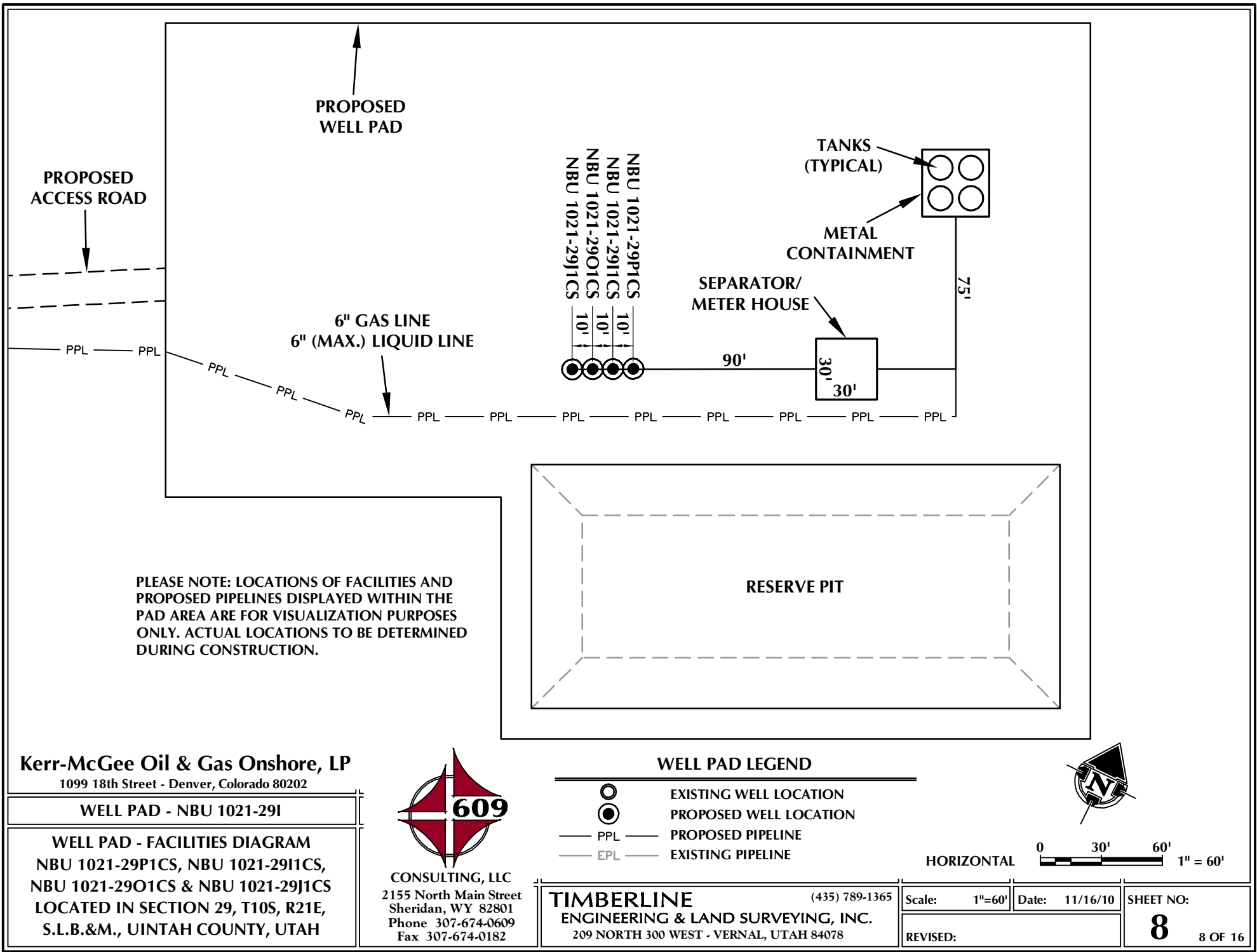
**TIMBERLINE**  
ENGINEERING & LAND SURVEYING, INC.  
209 NORTH 300 WEST - VERNAL, UTAH 84078

(435) 789-1365

**HORIZONTAL** 0 50' 100' 1" = 100'  
**VERTICAL** 0 10' 20' 1" = 20'

Scale: 1"=100'	Date: 11/16/10	SHEET NO:
REVISED:		<b>7</b> 7 OF 16





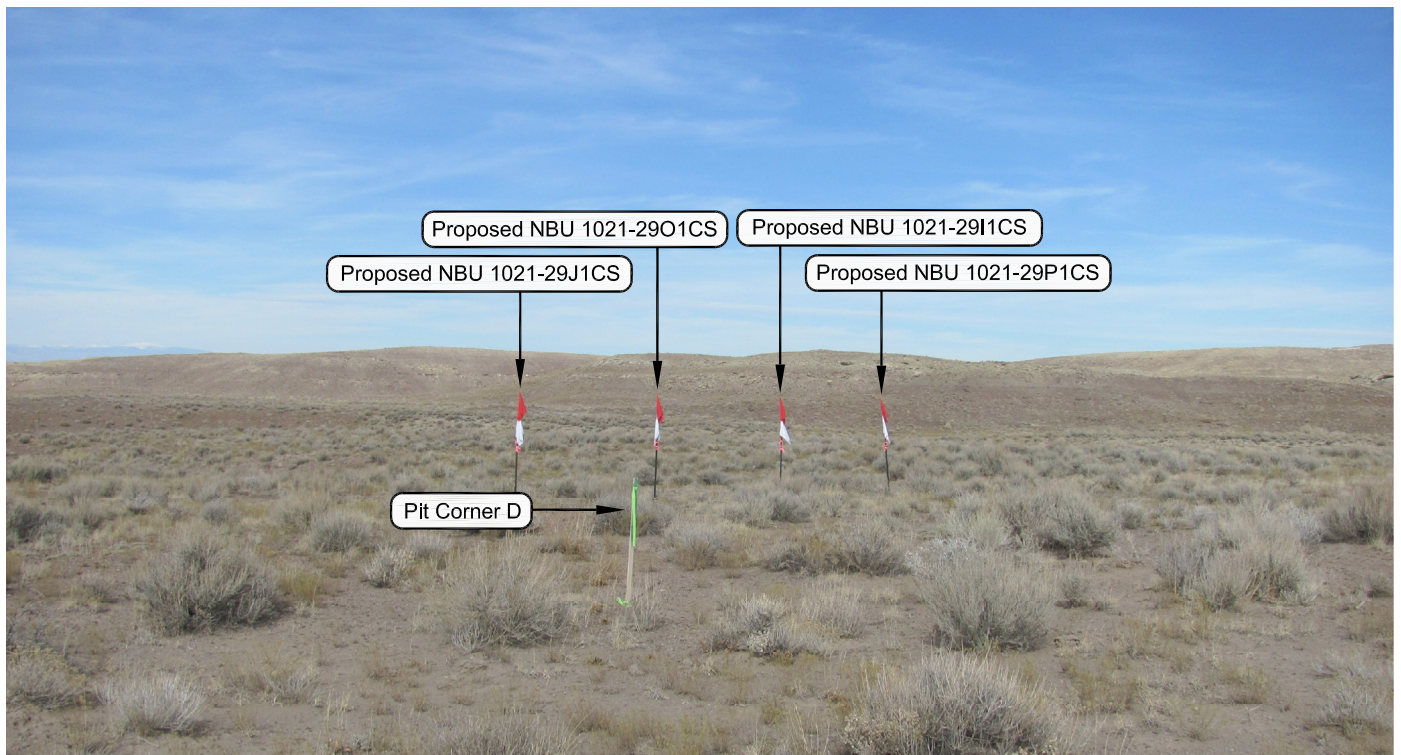


PHOTO VIEW: FROM PIT CORNER D TO LOCATION STAKE

CAMERA ANGLE: NORTHERLY

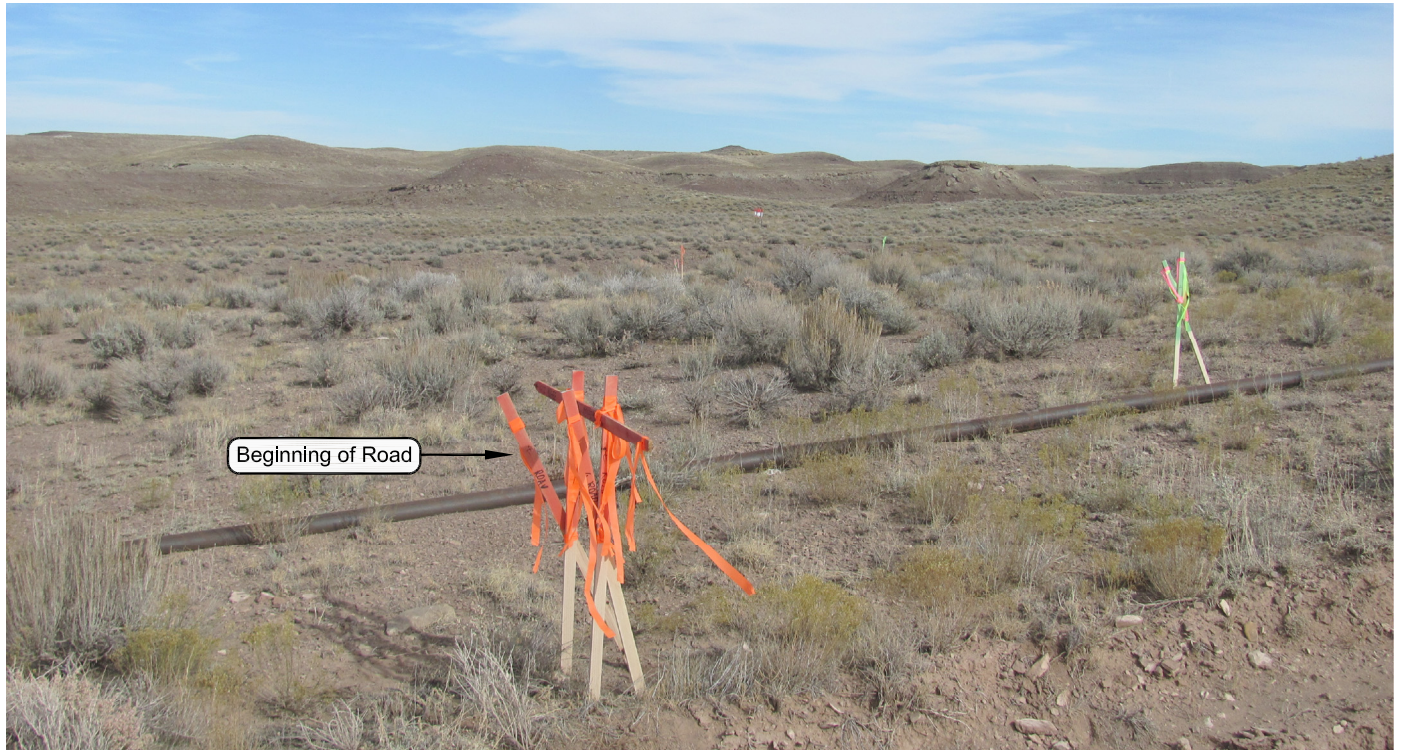


PHOTO VIEW: FROM BEGINNING OF PROPOSED ROAD

CAMERA ANGLE: NORTHEASTERLY

**Kerr-McGee Oil & Gas Onshore, LP**  
1099 18th Street - Denver, Colorado 80202

**WELL PAD - NBU 1021-29I**

**LOCATION PHOTOS**  
NBU 1021-29P1CS, NBU 1021-29I1CS,  
NBU 1021-29O1CS & NBU 1021-29J1CS  
LOCATED IN SECTION 29, T10S, R21E,  
S.L.B.&M., UTAH COUNTY, UTAH.



**CONSULTING, LLC**  
2155 North Main Street  
Sheridan WY 82801  
Phone 307-674-0609  
Fax 307-674-0182

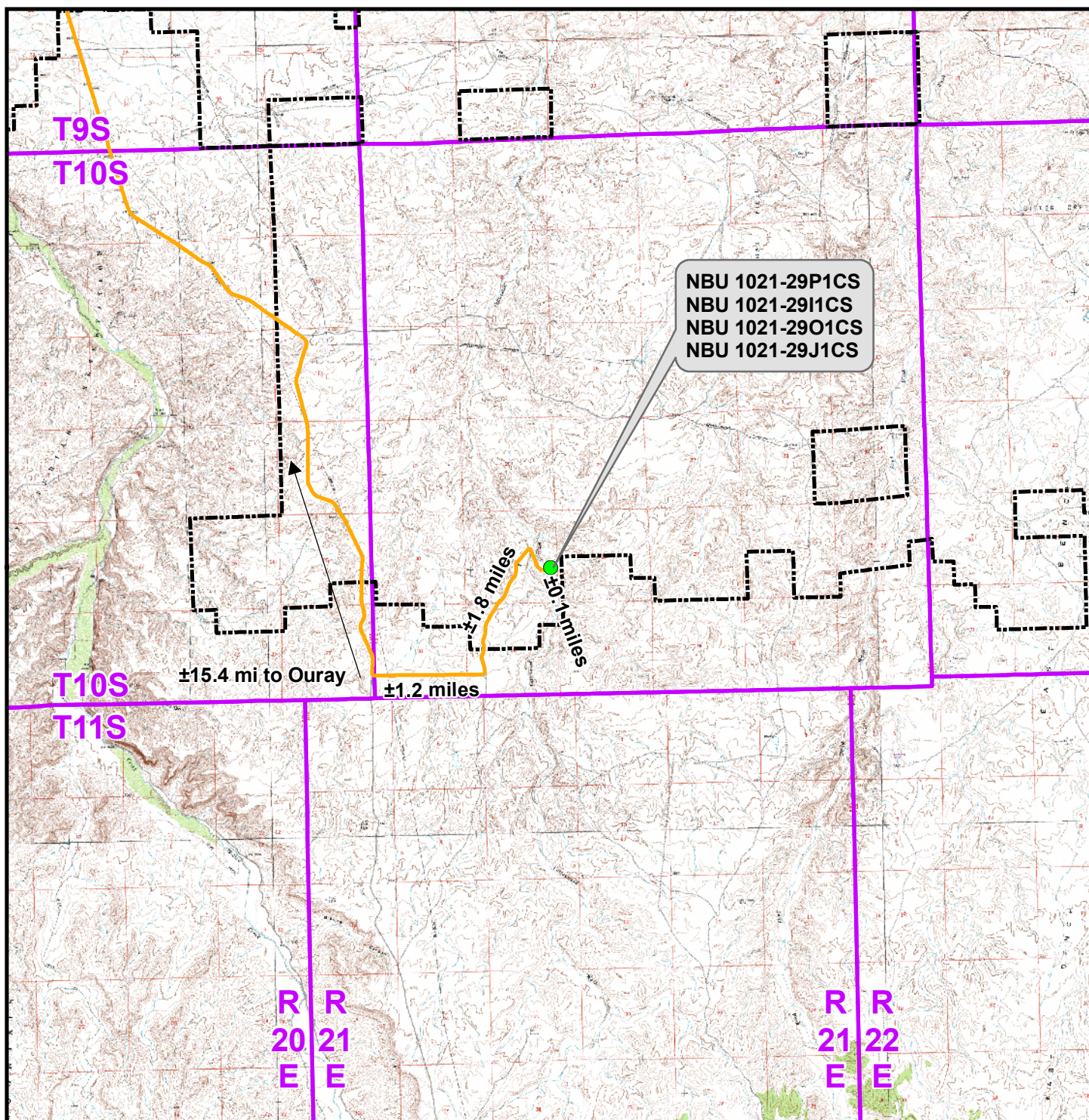
**TIMBERLINE**

(435) 789-1365

ENGINEERING & LAND SURVEYING, INC.  
209 NORTH 300 WEST - VERNAL, UTAH 84078

DATE PHOTOS TAKEN: 10-29-10	PHOTOS TAKEN BY: D.J.S.	SHEET NO:  <b>9</b> 9 OF 16
DATE DRAWN: 11-08-10	DRAWN BY: B.M.	
Date Last Revised:		





### Legend

- Proposed Well Location
- Natural Buttes Unit Boundary
- Access Route - Proposed

Distance From Well Pad - NBU 1021-29I To Unit Boundary: ±400ft

**Kerr-McGee Oil & Gas Onshore, LP**  
1099 18th Street, Denver, Colorado 80202

**WELL PAD - NBU 1021-29I**

**TOPO A**  
NBU 1021-29P1CS, NBU 1021-29I1CS,  
NBU 1021-29O1CS & NBU 1021-29J1CS  
LOCATED IN SECTION 29, T10S, R21E,  
S.L.B.&M., UTAH COUNTY, UTAH

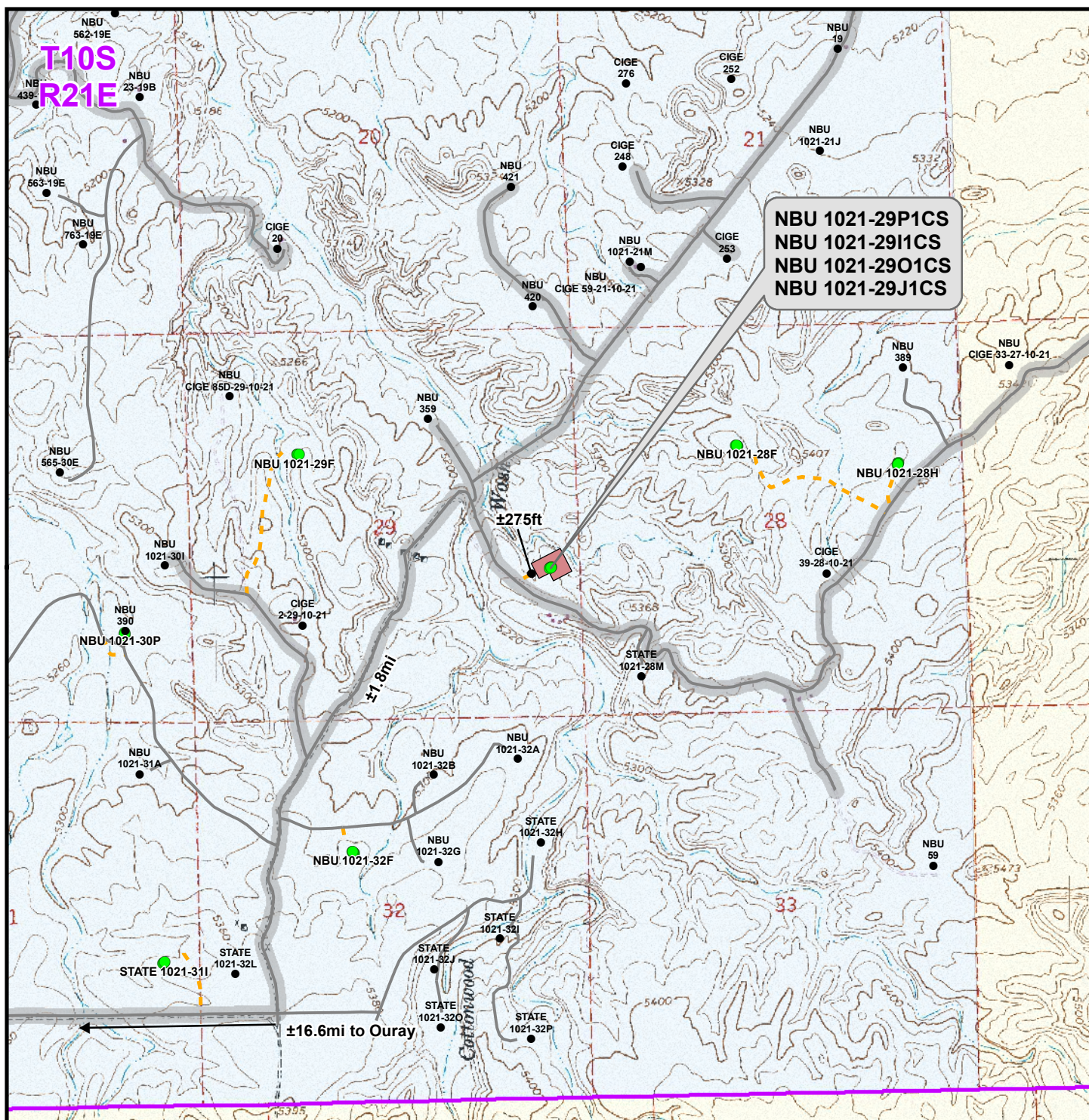


Scale: 1:100,000	NAD83 USP Central
Drawn: TL	Date: 16 Nov 2010
Revised:	Date:

Sheet No:

**10** 10 of 16





### Legend

- |                   |            |                       |               |                             |           |
|-------------------|------------|-----------------------|---------------|-----------------------------|-----------|
| ● Well - Proposed | ■ Well Pad | - - - Road - Proposed | — County Road | ■ Bureau of Land Management | ■ State   |
| ● Well - Existing |            | — Road - Existing     |               | ■ Indian Reservation        | □ Private |

Total Proposed Road Length: ±275ft

**Kerr-McGee Oil & Gas Onshore, LP**  
1099 18th Street, Denver, Colorado 80202

### WELL PAD - NBU 1021-29I

#### TOPO B

NBU 1021-29P1CS, NBU 1021-29I1CS,  
NBU 1021-29O1CS & NBU 1021-29J1CS  
LOCATED IN SECTION 29, T10S, R21E,  
S.L.B.&M., UTAH COUNTY, UTAH



**609 CONSULTING, LLC**  
2155 North Main Street  
Sheridan, WY 82801  
Phone (307) 674-0609  
Fax (307) 674-0182



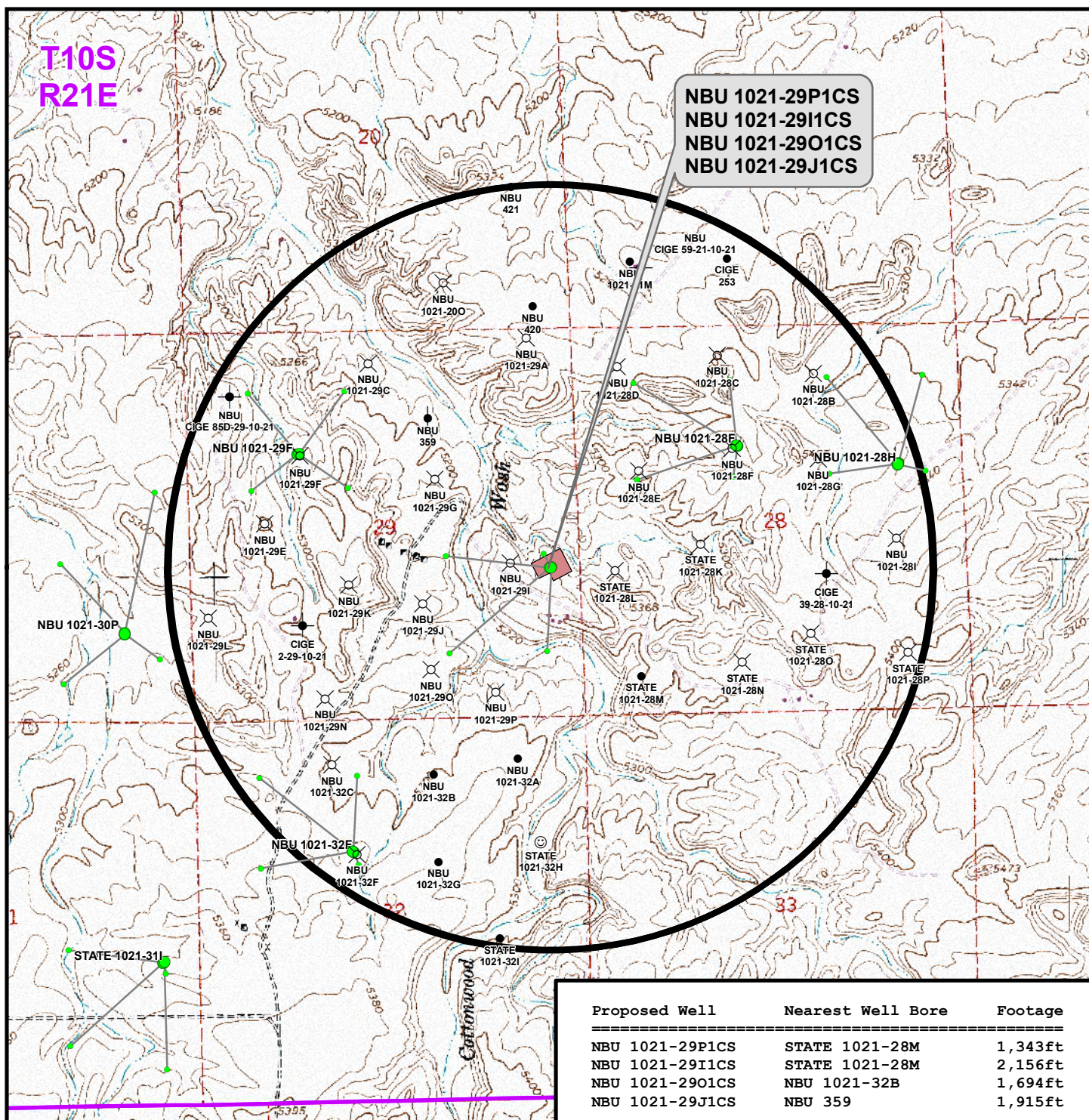
Scale: 1" = 2,000ft	NAD83 USP Central
Drawn: TL	Date: 16 Nov 2010
Revised:	Date:

Sheet No:

11

11 of 16



**Legend**

- Well - Proposed
- Bottom Hole - Proposed
- Well Path
- Bottom Hole - Existing
- Well Pad
- Well - 1 Mile Radius

Well locations derived from State of Utah, Dept. of Natural Resources, Division of Oil, Gas and Mining

- Producing
- ★ Active
- ⊙ Spudded (Drilling commenced: Not yet completed)
- ▲ Approved permit (APD); not yet spudded
- New Permit (Not yet approved or drilled)
- ⊕ Inactive
- ⊗ Drilling Operations Suspended
- Temporarily-Abandoned
- Shut-In
- Plugged and Abandoned
- ⊗ Location Abandoned
- ⊗ Dry hole marker, buried
- ⊗ Returned APD (Unapproved)

**Kerr-McGee Oil & Gas Onshore, LP**  
1099 18th Street, Denver, Colorado 80202

**WELL PAD - NBU 1021-29I**

**TOPO C**  
NBU 1021-29P1CS, NBU 1021-29I1CS,  
NBU 1021-29O1CS & NBU 1021-29J1CS  
LOCATED IN SECTION 29, T10S, R21E,  
S.L.B.&M., UTAH COUNTY, UTAH

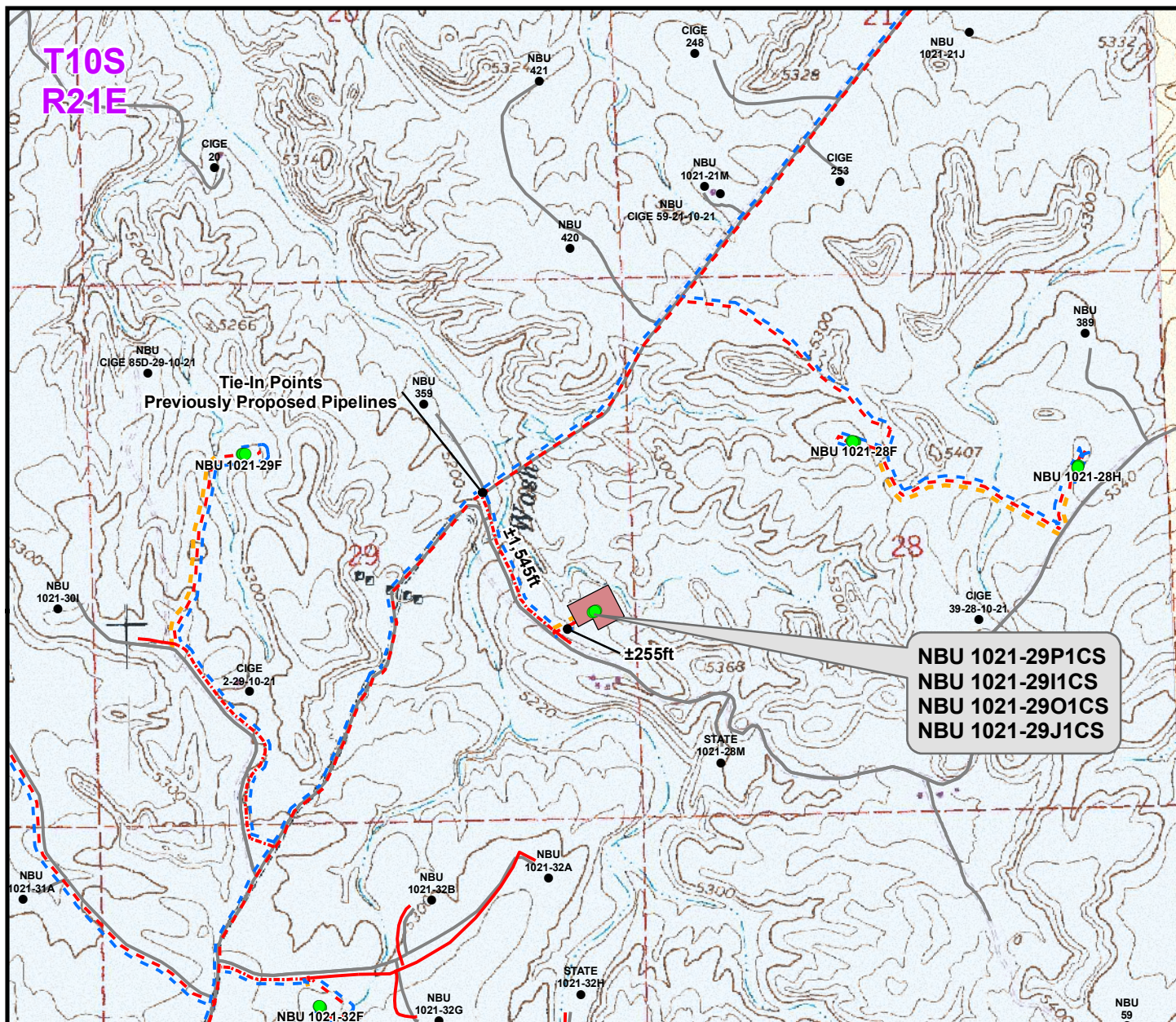
**609**  
**CONSULTING, LLC**  
2155 North Main Street  
Sheridan, WY 82801  
Phone (307) 674-0609  
Fax (307) 674-0182



Scale: 1" = 2,000ft | NAD83 USP Central  
Drawn: TL | Date: 16 Nov 2010  
Revised: | Date:

Sheet No:  
**12** 12 of 16





NBU 1021-29P1CS  
NBU 1021-29I1CS  
NBU 1021-29O1CS  
NBU 1021-29J1CS

Proposed Liquid Pipeline	Length
Proposed 6" Max. (Meter House to Edge of Pad)	±475ft
Proposed 6" Max. (Edge of Pad to Road Intersection)	±255ft
Proposed 6" Max. (Road Intersection to Previously Proposed Liquid Pipeline)	±1,545ft
<b>TOTAL PROPOSED LIQUID PIPELINE =</b>	<b>±2,275ft</b>

Proposed Gas Pipeline	Length
Proposed 6" (Meter House to Edge of Pad)	±475ft
Proposed 6" (Edge of Pad to Road Intersection)	±255ft
Proposed 12" (Road Intersection to Previously Proposed 16" Gas Pipeline)	±1,545ft
<b>TOTAL PROPOSED GAS PIPELINE =</b>	<b>±2,275ft</b>

### Legend

- Well - Proposed
- Well - Existing
- Well Pad
- - - Gas Pipeline - Proposed
- - - Gas Pipeline - To Be Upgraded
- - - Gas Pipeline - Existing
- - - Liquid Pipeline - Proposed
- - - Liquid Pipeline - Existing
- - - Road - Proposed
- - - Road - Existing
- Bureau of Land Management
- Indian Reservation
- State
- Private

**Kerr-McGee Oil & Gas Onshore, LP**  
1099 18th Street, Denver, Colorado 80202

### WELL PAD - NBU 1021-29I

**TOPO D**  
NBU 1021-29P1CS, NBU 1021-29I1CS,  
NBU 1021-29O1CS & NBU 1021-29J1CS  
LOCATED IN SECTION 29, T10S, R21E,  
S.L.B.&M., UTAH COUNTY, UTAH

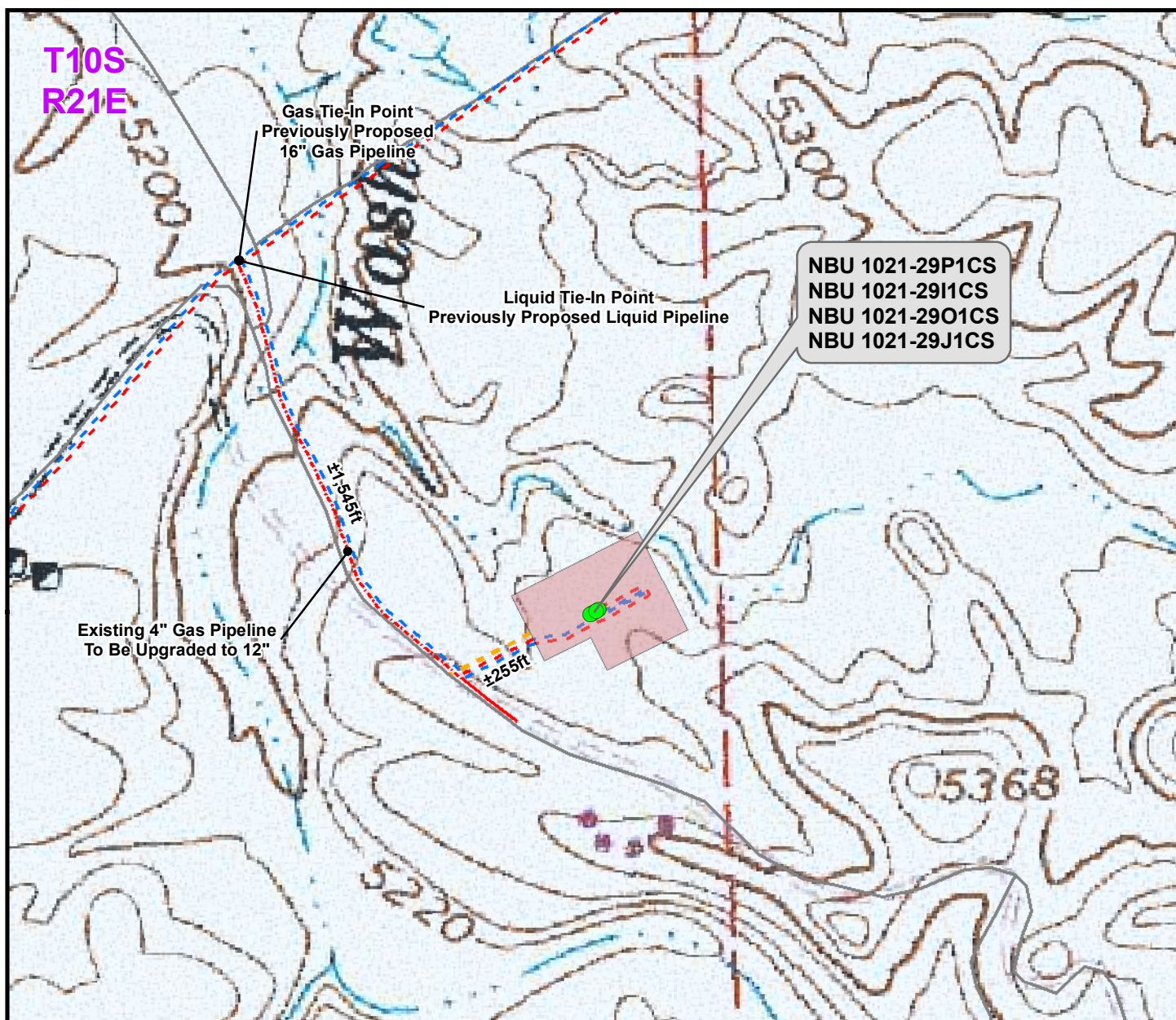


Scale: 1" = 2,000ft  
NAD83 USP Central  
Drawn: TL  
Revised: Date: 16 Nov 2010

Sheet No:

**13** 13 of 16





Proposed Liquid Pipeline	Length
Proposed 6" Max. (Meter House to Edge of Pad)	±475ft
Proposed 6" Max. (Edge of Pad to Road Intersection)	±255ft
Proposed 6" Max. (Road Intersection to Previously Proposed Liquid Pipeline)	±1,545ft
<b>TOTAL PROPOSED LIQUID PIPELINE =</b>	<b>±2,275ft</b>

Proposed Gas Pipeline	Length
Proposed 6" (Meter House to Edge of Pad)	±475ft
Proposed 6" (Edge of Pad to Road Intersection)	±255ft
Proposed 12" (Road Intersection to Previously Proposed 16" Gas Pipeline)	±1,545ft
<b>TOTAL PROPOSED GAS PIPELINE =</b>	<b>±2,275ft</b>

### Legend

- Well - Proposed   
  Well Pad   
 --- Gas Pipeline - Proposed   
 --- Liquid Pipeline - Proposed   
 --- Road - Proposed   
  Bureau of Land Management
- Well - Existing   
 --- Gas Pipeline - To Be Upgraded   
 --- Liquid Pipeline - Existing   
 --- Road - Existing   
  Indian Reservation
- Gas Pipeline - Existing   
  State   
  Private

**Kerr-McGee Oil & Gas Onshore, LP**  
 1099 18th Street, Denver, Colorado 80202

**WELL PAD - NBU 1021-29I**

**TOPO D2 (PAD & PIPELINE DETAIL)**  
 NBU 1021-29P1CS, NBU 1021-29I1CS,  
 NBU 1021-29O1CS & NBU 1021-29J1CS  
 LOCATED IN SECTION 29, T10S, R21E,  
 S.L.B.&M., UTAH COUNTY, UTAH



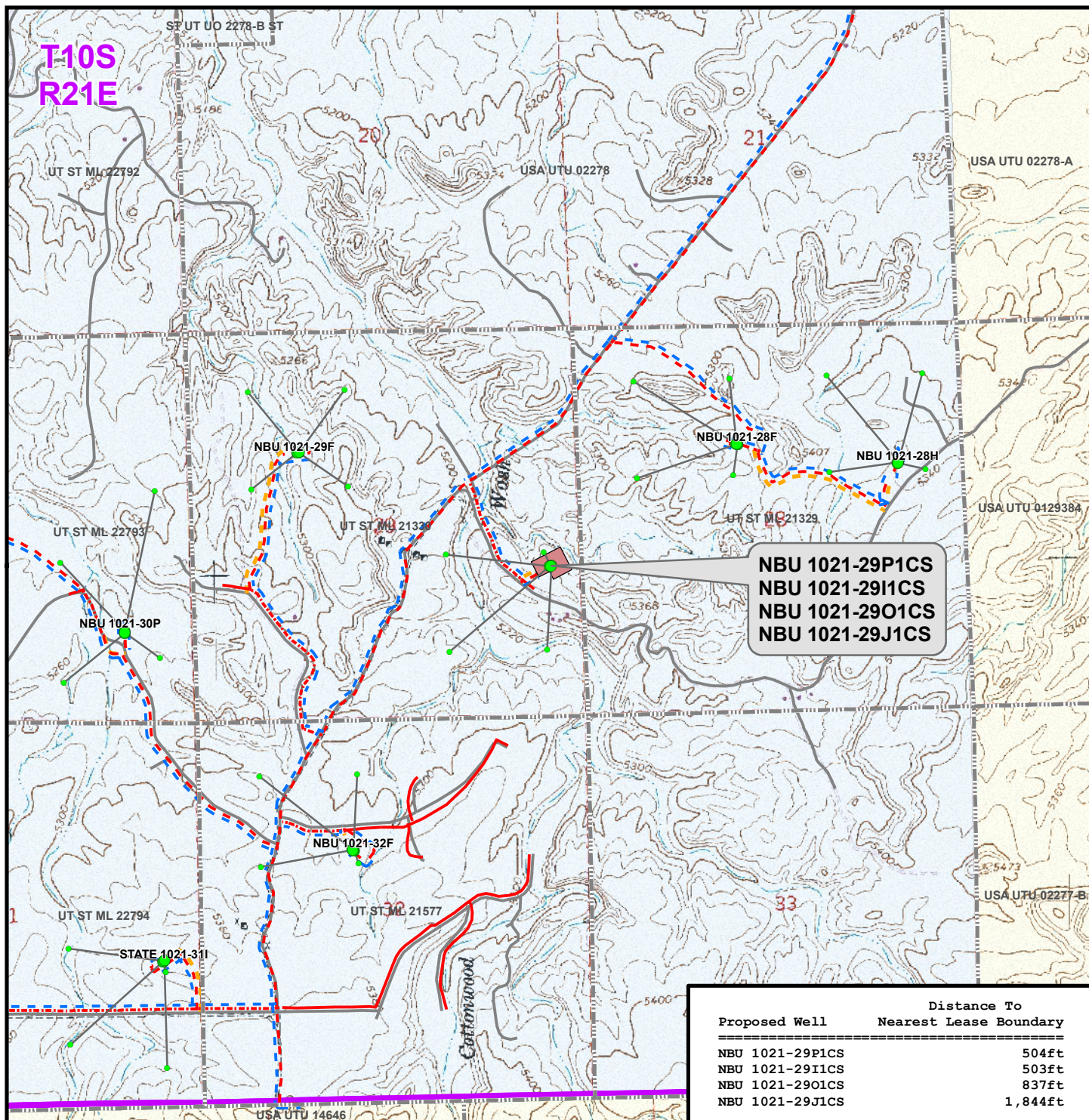
Scale: 1" = 500ft    NAD83 USP Central  
 Drawn: TL    Date: 16 Nov 2010  
 Revised:    Date:

Sheet No:

**14**

14 of 16





Proposed Well	Distance To Nearest Lease Boundary
NBU 1021-29P1CS	504ft
NBU 1021-29I1CS	503ft
NBU 1021-29O1CS	837ft
NBU 1021-29J1CS	1,844ft

#### Legend

- Well - Proposed
- Bottom Hole - Proposed
- Bottom Hole - Existing
- Well Path
- Well Pad
- ▬ Lease Boundary
- Gas Pipeline - Proposed
- Gas Pipeline - To Be Upgraded
- Gas Pipeline - Existing
- Liquid Pipeline - Proposed
- Liquid Pipeline - Existing
- Road - Proposed
- Road - Existing
- Bureau of Land Management
- Indian Reservation
- State
- Private

**Kerr-McGee Oil & Gas Onshore, LP**  
1099 18th Street, Denver, Colorado 80202

#### WELL PAD - NBU 1021-29I

**TOPO E**  
NBU 1021-29P1CS, NBU 1021-29I1CS,  
NBU 1021-29O1CS & NBU 1021-29J1CS  
LOCATED IN SECTION 29, T10S, R21E,  
S.L.B.&M., UINTAH COUNTY, UTAH

**609**  
**CONSULTING, LLC**  
2155 North Main Street  
Sheridan, WY 82801  
Phone (307) 674-0609  
Fax (307) 674-0182



Scale: 1" = 2,000ft  
NAD83 USP Central  
Drawn: TL  
Revised:  
Date: 16 Nov 2010  
Date:

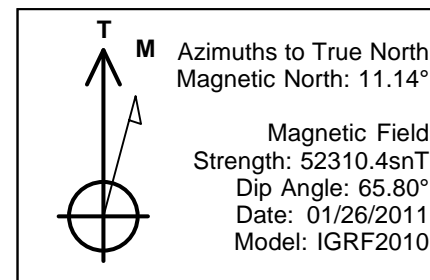
Sheet No:  
**15**  
15 of 16



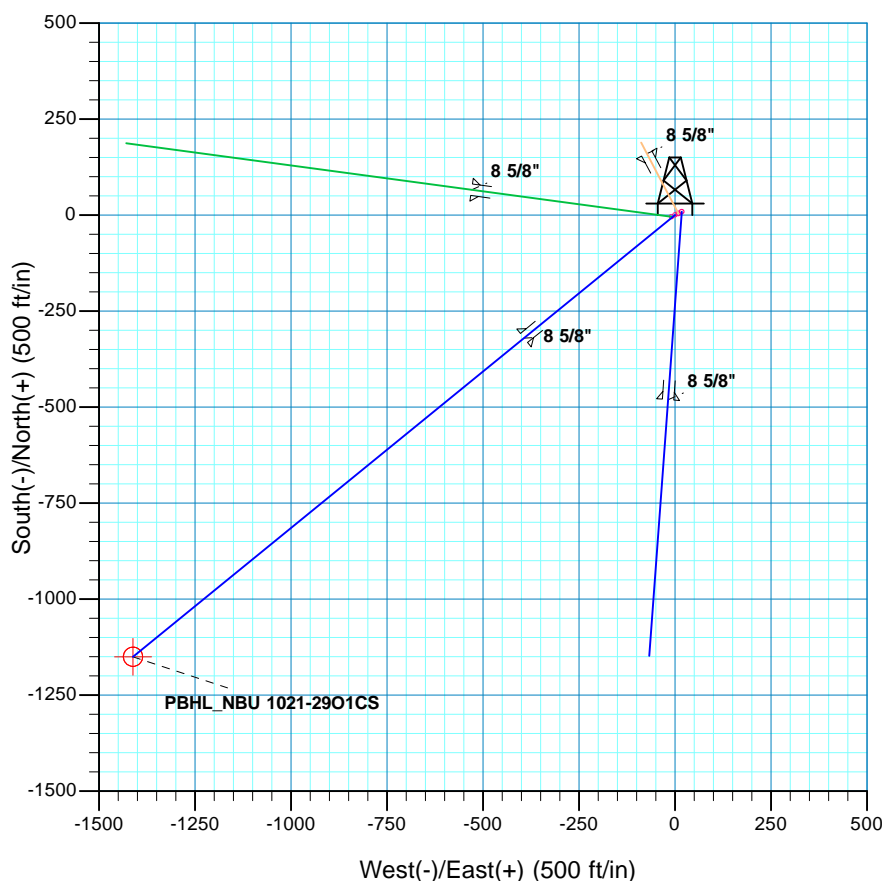
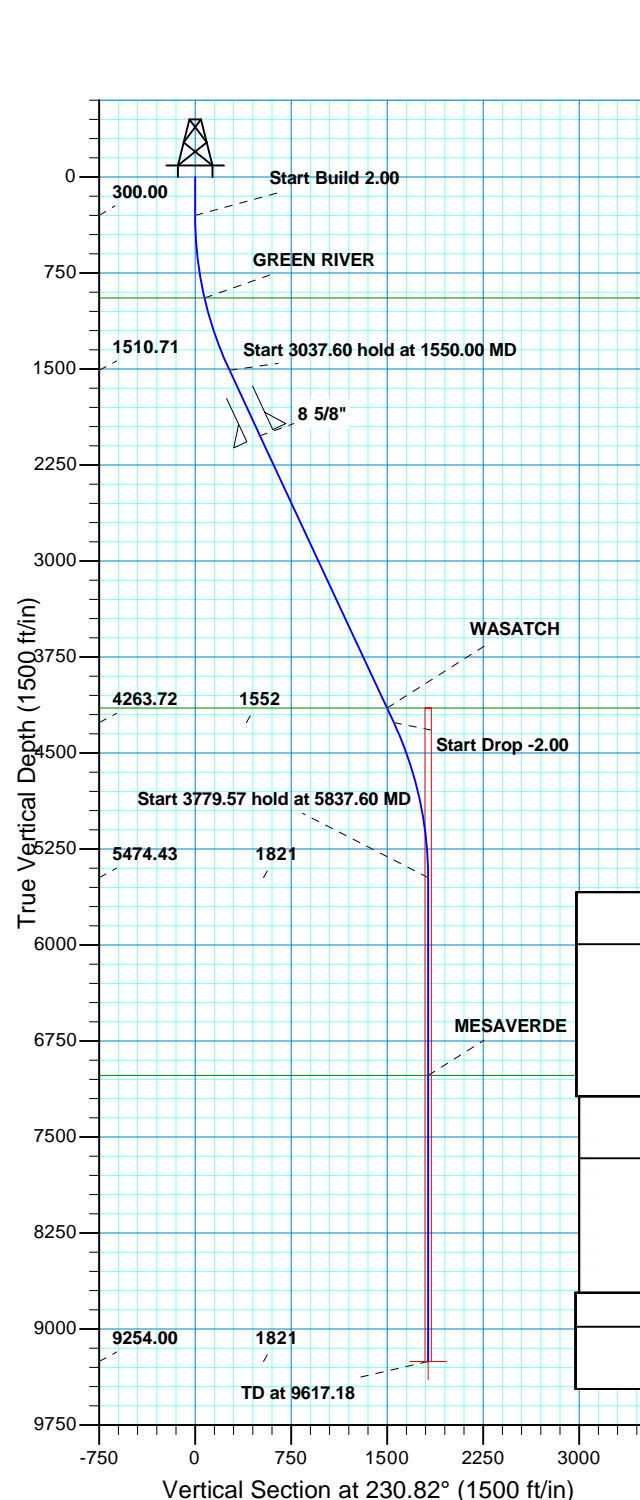
**Kerr-McGee Oil & Gas Onshore, LP  
WELL PAD – NBU 1021-29I  
WELLS – NBU 1021-29P1CS, NBU 1021-29I1CS,  
NBU 1021-29O1CS & NBU 1021-29J1CS  
Section 29, T10S, R21E, S.L.B.&M.**

From the intersection of U.S. Highway 40 and Vernal Avenue in Vernal, Utah, proceed in a westerly direction along U.S. Highway 40 approximately 13.9 miles to the junction of State Highway 88. Exit left and proceed in a southerly direction along State Highway 88 approximately 16.8 miles to Ouray, Utah. From Ouray, proceed in a southerly direction along the Seep Ridge Road (County B Road 2810) approximately 15.4 miles to the intersection of a Class D County Road to the east. Exit left and proceed in an easterly direction along the Class D County Road approximately 1.2 miles to the intersection of the Cottonwood Wash Road (Class D County Road) to the north. Exit left and proceed in a northerly then northeasterly then southeasterly direction along the Cottonwood Wash Road approximately 1.8 miles to the proposed access road. Follow road flags in a northeasterly direction approximately 275 feet to the proposed location.

Total distance from Vernal, Utah to the proposed well location is approximately 49.2 miles in a southerly direction.



WELL DETAILS: NBU 1021-2901CS						
GL 5253 & KB 4' @ 5257.00ft (ASSUMED)						
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	
0.00	0.00	14498959.63	2042288.13	39° 55' 0.336 N	109° 34' 0.512 W	
DESIGN TARGET DETAILS						
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude
PBHL	9254.00	-1150.09	-1411.29	14497787.03	2040895.48	39° 54' 48.967 N
- plan hits target center						
Longitude	Shape					
109° 34' 18.628 W	Circle (Radius: 25.00)					



SECTION DETAILS									
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	
1550.00	25.00	230.82	1510.71	-169.56	-208.07	2.00	230.82	268.41	
4587.60	25.00	230.82	4263.72	-980.53	-1203.22	0.00	0.00	1552.16	
5837.60	0.00	0.00	5474.43	-1150.09	-1411.29	2.00	180.00	1820.56	
9617.18	0.00	0.00	9254.00	-1150.09	-1411.29	0.00	0.00	1820.56	PBHL_NBU 1021-2901CS
PROJECT DETAILS: UTAH - UTM (feet), NAD27, Zone 12N						FORMATION TOP DETAILS			
Geodetic System: Universal Transverse Mercator (US Survey Feet) Datum: NAD 1927 (NADCON CONUS) Ellipsoid: Clarke 1866 Zone: Zone 12N (114 W to 108 W) Location: SECTION 29 T10S R21E System Datum: Mean Sea Level						TVDPath	MDPath	Formation	
						945.00	950.58	GREEN RIVER	
						4150.00	4462.13	WASATCH	
						7019.00	7382.18	MESAVERDE	
CASING DETAILS									
			TVD	MD	Name	Size			
			2022.00	2114.14	8 5/8"	8.625			



# **US ROCKIES REGION PLANNING**

**UTAH - UTM (feet), NAD27, Zone 12N**

**UINTAH\_NBU 1021-29I PAD**

**NBU 1021-29O1CS**

**NBU 1021-29O1CS**

**Plan: PLAN #1 1-26-11 RHS**

## **Standard Planning Report**

**26 January, 2011**





# SDI Planning Report



<b>Database:</b>	EDM5000-RobertS-Local	<b>Local Co-ordinate Reference:</b>	Well NBU 1021-29O1CS
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	GL 5253 & KB 4' @ 5257.00ft (ASSUMED)
<b>Project:</b>	UTAH - UTM (feet), NAD27, Zone 12N	<b>MD Reference:</b>	GL 5253 & KB 4' @ 5257.00ft (ASSUMED)
<b>Site:</b>	UINTAH_NBU 1021-29I PAD	<b>North Reference:</b>	True
<b>Well:</b>	NBU 1021-29O1CS	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	NBU 1021-29O1CS		
<b>Design:</b>	PLAN #1 1-26-11 RHS		

<b>Project</b>	UTAH - UTM (feet), NAD27, Zone 12N		
<b>Map System:</b>	Universal Transverse Mercator (US Survey Feet)	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	NAD 1927 (NADCON CONUS)		
<b>Map Zone:</b>	Zone 12N (114 W to 108 W)		

<b>Site</b>	UINTAH_NBU 1021-29I PAD, SECTION 29 T10S R21E			
<b>Site Position:</b>		<b>Northing:</b>	14,498,964.15 usft	<b>Latitude:</b> 39° 55' 0.379 N
<b>From:</b>	Lat/Long	<b>Easting:</b>	2,042,297.02 usft	<b>Longitude:</b> 109° 34' 0.397 W
<b>Position Uncertainty:</b>	0.00 ft	<b>Slot Radius:</b>	13.200 in	<b>Grid Convergence:</b> 0.92 °

<b>Well</b>	NBU 1021-29O1CS, 1984 FSL 418 FEL			
<b>Well Position</b>	<b>+N/-S</b>	-4.37 ft	<b>Northing:</b>	14,498,959.63 usft
	<b>+E/-W</b>	-8.97 ft	<b>Easting:</b>	2,042,288.12 usft
<b>Position Uncertainty</b>	0.00 ft	<b>Wellhead Elevation:</b>		<b>Ground Level:</b> 5,253.00 ft

<b>Wellbore</b>	NBU 1021-29O1CS				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	01/26/2011	11.14	65.80	52,310

<b>Design</b>	PLAN #1 1-26-11 RHS			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PLAN	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>
	0.00	0.00	0.00	230.82

<b>Plan Sections</b>										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,550.00	25.00	230.82	1,510.71	-169.56	-208.07	2.00	2.00	0.00	230.82	
4,587.60	25.00	230.82	4,263.72	-980.53	-1,203.22	0.00	0.00	0.00	0.00	
5,837.60	0.00	0.00	5,474.43	-1,150.09	-1,411.29	2.00	-2.00	0.00	180.00	
9,617.18	0.00	0.00	9,254.00	-1,150.09	-1,411.29	0.00	0.00	0.00	0.00	PBHL_NBU 1021-29C



<b>Database:</b>	EDM5000-RobertS-Local	<b>Local Co-ordinate Reference:</b>	Well NBU 1021-29O1CS
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	GL 5253 & KB 4' @ 5257.00ft (ASSUMED)
<b>Project:</b>	UTAH - UTM (feet), NAD27, Zone 12N	<b>MD Reference:</b>	GL 5253 & KB 4' @ 5257.00ft (ASSUMED)
<b>Site:</b>	UINTAH_NBU 1021-29I PAD	<b>North Reference:</b>	True
<b>Well:</b>	NBU 1021-29O1CS	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	NBU 1021-29O1CS		
<b>Design:</b>	PLAN #1 1-26-11 RHS		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Start Build 2.00</b>									
400.00	2.00	230.82	399.98	-1.10	-1.35	1.75	2.00	2.00	0.00
500.00	4.00	230.82	499.84	-4.41	-5.41	6.98	2.00	2.00	0.00
600.00	6.00	230.82	599.45	-9.91	-12.17	15.69	2.00	2.00	0.00
700.00	8.00	230.82	698.70	-17.61	-21.61	27.88	2.00	2.00	0.00
800.00	10.00	230.82	797.47	-27.49	-33.74	43.52	2.00	2.00	0.00
900.00	12.00	230.82	895.62	-39.55	-48.53	62.60	2.00	2.00	0.00
950.58	13.01	230.82	945.00	-46.47	-57.02	73.55	2.00	2.00	0.00
<b>GREEN RIVER</b>									
1,000.00	14.00	230.82	993.06	-53.76	-65.97	85.10	2.00	2.00	0.00
1,100.00	16.00	230.82	1,089.64	-70.11	-86.03	110.98	2.00	2.00	0.00
1,200.00	18.00	230.82	1,185.27	-88.58	-108.69	140.21	2.00	2.00	0.00
1,300.00	20.00	230.82	1,279.82	-109.14	-133.93	172.77	2.00	2.00	0.00
1,400.00	22.00	230.82	1,373.17	-131.78	-161.71	208.60	2.00	2.00	0.00
1,500.00	24.00	230.82	1,465.21	-156.46	-192.00	247.67	2.00	2.00	0.00
1,550.00	25.00	230.82	1,510.71	-169.56	-208.07	268.41	2.00	2.00	0.00
<b>Start 3037.60 hold at 1550.00 MD</b>									
1,600.00	25.00	230.82	1,556.03	-182.91	-224.45	289.54	0.00	0.00	0.00
1,700.00	25.00	230.82	1,646.66	-209.61	-257.21	331.80	0.00	0.00	0.00
1,800.00	25.00	230.82	1,737.29	-236.30	-289.97	374.06	0.00	0.00	0.00
1,900.00	25.00	230.82	1,827.92	-263.00	-322.73	416.32	0.00	0.00	0.00
2,000.00	25.00	230.82	1,918.55	-289.70	-355.49	458.59	0.00	0.00	0.00
2,100.00	25.00	230.82	2,009.18	-316.40	-388.26	500.85	0.00	0.00	0.00
2,114.14	25.00	230.82	2,022.00	-320.17	-392.89	506.83	0.00	0.00	0.00
<b>8 5/8"</b>									
2,200.00	25.00	230.82	2,099.81	-343.09	-421.02	543.11	0.00	0.00	0.00
2,300.00	25.00	230.82	2,190.44	-369.79	-453.78	585.37	0.00	0.00	0.00
2,400.00	25.00	230.82	2,281.07	-396.49	-486.54	627.63	0.00	0.00	0.00
2,500.00	25.00	230.82	2,371.70	-423.19	-519.30	669.90	0.00	0.00	0.00
2,600.00	25.00	230.82	2,462.34	-449.89	-552.06	712.16	0.00	0.00	0.00
2,700.00	25.00	230.82	2,552.97	-476.58	-584.82	754.42	0.00	0.00	0.00
2,800.00	25.00	230.82	2,643.60	-503.28	-617.58	796.68	0.00	0.00	0.00
2,900.00	25.00	230.82	2,734.23	-529.98	-650.34	838.94	0.00	0.00	0.00
3,000.00	25.00	230.82	2,824.86	-556.68	-683.11	881.20	0.00	0.00	0.00
3,100.00	25.00	230.82	2,915.49	-583.37	-715.87	923.47	0.00	0.00	0.00
3,200.00	25.00	230.82	3,006.12	-610.07	-748.63	965.73	0.00	0.00	0.00
3,300.00	25.00	230.82	3,096.75	-636.77	-781.39	1,007.99	0.00	0.00	0.00
3,400.00	25.00	230.82	3,187.38	-663.47	-814.15	1,050.25	0.00	0.00	0.00
3,500.00	25.00	230.82	3,278.01	-690.17	-846.91	1,092.51	0.00	0.00	0.00
3,600.00	25.00	230.82	3,368.64	-716.86	-879.67	1,134.78	0.00	0.00	0.00
3,700.00	25.00	230.82	3,459.27	-743.56	-912.43	1,177.04	0.00	0.00	0.00
3,800.00	25.00	230.82	3,549.90	-770.26	-945.20	1,219.30	0.00	0.00	0.00
3,900.00	25.00	230.82	3,640.54	-796.96	-977.96	1,261.56	0.00	0.00	0.00
4,000.00	25.00	230.82	3,731.17	-823.65	-1,010.72	1,303.82	0.00	0.00	0.00
4,100.00	25.00	230.82	3,821.80	-850.35	-1,043.48	1,346.09	0.00	0.00	0.00
4,200.00	25.00	230.82	3,912.43	-877.05	-1,076.24	1,388.35	0.00	0.00	0.00
4,300.00	25.00	230.82	4,003.06	-903.75	-1,109.00	1,430.61	0.00	0.00	0.00
4,400.00	25.00	230.82	4,093.69	-930.44	-1,141.76	1,472.87	0.00	0.00	0.00
4,462.13	25.00	230.82	4,150.00	-947.03	-1,162.12	1,499.13	0.00	0.00	0.00
<b>WASATCH</b>									



<b>Database:</b>	EDM5000-RobertS-Local	<b>Local Co-ordinate Reference:</b>	Well NBU 1021-29O1CS
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	GL 5253 & KB 4' @ 5257.00ft (ASSUMED)
<b>Project:</b>	UTAH - UTM (feet), NAD27, Zone 12N	<b>MD Reference:</b>	GL 5253 & KB 4' @ 5257.00ft (ASSUMED)
<b>Site:</b>	UINTAH_NBU 1021-29I PAD	<b>North Reference:</b>	True
<b>Well:</b>	NBU 1021-29O1CS	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	NBU 1021-29O1CS		
<b>Design:</b>	PLAN #1 1-26-11 RHS		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
4,500.00	25.00	230.82	4,184.32	-957.14	-1,174.52	1,515.13	0.00	0.00	0.00
4,587.60	25.00	230.82	4,263.72	-980.53	-1,203.22	1,552.16	0.00	0.00	0.00
<b>Start Drop -2.00</b>									
4,600.00	24.75	230.82	4,274.96	-983.82	-1,207.27	1,557.37	2.00	-2.00	0.00
4,700.00	22.75	230.82	4,366.49	-1,009.27	-1,238.49	1,597.65	2.00	-2.00	0.00
4,800.00	20.75	230.82	4,459.36	-1,032.68	-1,267.21	1,634.70	2.00	-2.00	0.00
4,900.00	18.75	230.82	4,553.47	-1,054.03	-1,293.41	1,668.50	2.00	-2.00	0.00
5,000.00	16.75	230.82	4,648.71	-1,073.29	-1,317.04	1,698.98	2.00	-2.00	0.00
5,100.00	14.75	230.82	4,744.95	-1,090.43	-1,338.09	1,726.13	2.00	-2.00	0.00
5,200.00	12.75	230.82	4,842.08	-1,105.45	-1,356.52	1,749.90	2.00	-2.00	0.00
5,300.00	10.75	230.82	4,939.97	-1,118.32	-1,372.30	1,770.27	2.00	-2.00	0.00
5,400.00	8.75	230.82	5,038.52	-1,129.02	-1,385.43	1,787.21	2.00	-2.00	0.00
5,500.00	6.75	230.82	5,137.61	-1,137.54	-1,395.89	1,800.69	2.00	-2.00	0.00
5,600.00	4.75	230.82	5,237.10	-1,143.87	-1,403.66	1,810.72	2.00	-2.00	0.00
5,700.00	2.75	230.82	5,336.88	-1,148.00	-1,408.73	1,817.26	2.00	-2.00	0.00
5,800.00	0.75	230.82	5,436.83	-1,149.93	-1,411.10	1,820.32	2.00	-2.00	0.00
5,837.60	0.00	0.00	5,474.43	-1,150.09	-1,411.29	1,820.56	2.00	-2.00	0.00
<b>Start 3779.57 hold at 5837.60 MD</b>									
5,900.00	0.00	0.00	5,536.82	-1,150.09	-1,411.29	1,820.56	0.00	0.00	0.00
6,000.00	0.00	0.00	5,636.82	-1,150.09	-1,411.29	1,820.56	0.00	0.00	0.00
6,100.00	0.00	0.00	5,736.82	-1,150.09	-1,411.29	1,820.56	0.00	0.00	0.00
6,200.00	0.00	0.00	5,836.82	-1,150.09	-1,411.29	1,820.56	0.00	0.00	0.00
6,300.00	0.00	0.00	5,936.82	-1,150.09	-1,411.29	1,820.56	0.00	0.00	0.00
6,400.00	0.00	0.00	6,036.82	-1,150.09	-1,411.29	1,820.56	0.00	0.00	0.00
6,500.00	0.00	0.00	6,136.82	-1,150.09	-1,411.29	1,820.56	0.00	0.00	0.00
6,600.00	0.00	0.00	6,236.82	-1,150.09	-1,411.29	1,820.56	0.00	0.00	0.00
6,700.00	0.00	0.00	6,336.82	-1,150.09	-1,411.29	1,820.56	0.00	0.00	0.00
6,800.00	0.00	0.00	6,436.82	-1,150.09	-1,411.29	1,820.56	0.00	0.00	0.00
6,900.00	0.00	0.00	6,536.82	-1,150.09	-1,411.29	1,820.56	0.00	0.00	0.00
7,000.00	0.00	0.00	6,636.82	-1,150.09	-1,411.29	1,820.56	0.00	0.00	0.00
7,100.00	0.00	0.00	6,736.82	-1,150.09	-1,411.29	1,820.56	0.00	0.00	0.00
7,200.00	0.00	0.00	6,836.82	-1,150.09	-1,411.29	1,820.56	0.00	0.00	0.00
7,300.00	0.00	0.00	6,936.82	-1,150.09	-1,411.29	1,820.56	0.00	0.00	0.00
7,382.18	0.00	0.00	7,019.00	-1,150.09	-1,411.29	1,820.56	0.00	0.00	0.00
<b>MESAVERDE</b>									
7,400.00	0.00	0.00	7,036.82	-1,150.09	-1,411.29	1,820.56	0.00	0.00	0.00
7,500.00	0.00	0.00	7,136.82	-1,150.09	-1,411.29	1,820.56	0.00	0.00	0.00
7,600.00	0.00	0.00	7,236.82	-1,150.09	-1,411.29	1,820.56	0.00	0.00	0.00
7,700.00	0.00	0.00	7,336.82	-1,150.09	-1,411.29	1,820.56	0.00	0.00	0.00
7,800.00	0.00	0.00	7,436.82	-1,150.09	-1,411.29	1,820.56	0.00	0.00	0.00
7,900.00	0.00	0.00	7,536.82	-1,150.09	-1,411.29	1,820.56	0.00	0.00	0.00
8,000.00	0.00	0.00	7,636.82	-1,150.09	-1,411.29	1,820.56	0.00	0.00	0.00
8,100.00	0.00	0.00	7,736.82	-1,150.09	-1,411.29	1,820.56	0.00	0.00	0.00
8,200.00	0.00	0.00	7,836.82	-1,150.09	-1,411.29	1,820.56	0.00	0.00	0.00
8,300.00	0.00	0.00	7,936.82	-1,150.09	-1,411.29	1,820.56	0.00	0.00	0.00
8,400.00	0.00	0.00	8,036.82	-1,150.09	-1,411.29	1,820.56	0.00	0.00	0.00
8,500.00	0.00	0.00	8,136.82	-1,150.09	-1,411.29	1,820.56	0.00	0.00	0.00
8,600.00	0.00	0.00	8,236.82	-1,150.09	-1,411.29	1,820.56	0.00	0.00	0.00
8,700.00	0.00	0.00	8,336.82	-1,150.09	-1,411.29	1,820.56	0.00	0.00	0.00
8,800.00	0.00	0.00	8,436.82	-1,150.09	-1,411.29	1,820.56	0.00	0.00	0.00
8,900.00	0.00	0.00	8,536.82	-1,150.09	-1,411.29	1,820.56	0.00	0.00	0.00
9,000.00	0.00	0.00	8,636.82	-1,150.09	-1,411.29	1,820.56	0.00	0.00	0.00
9,100.00	0.00	0.00	8,736.82	-1,150.09	-1,411.29	1,820.56	0.00	0.00	0.00

<b>Database:</b>	EDM5000-RobertS-Local	<b>Local Co-ordinate Reference:</b>	Well NBU 1021-2901CS
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	GL 5253 & KB 4' @ 5257.00ft (ASSUMED)
<b>Project:</b>	UTAH - UTM (feet), NAD27, Zone 12N	<b>MD Reference:</b>	GL 5253 & KB 4' @ 5257.00ft (ASSUMED)
<b>Site:</b>	UINTAH_NBU 1021-29I PAD	<b>North Reference:</b>	True
<b>Well:</b>	NBU 1021-2901CS	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	NBU 1021-2901CS		
<b>Design:</b>	PLAN #1 1-26-11 RHS		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
9,200.00	0.00	0.00	8,836.82	-1,150.09	-1,411.29	1,820.56	0.00	0.00	0.00
9,300.00	0.00	0.00	8,936.82	-1,150.09	-1,411.29	1,820.56	0.00	0.00	0.00
9,400.00	0.00	0.00	9,036.82	-1,150.09	-1,411.29	1,820.56	0.00	0.00	0.00
9,500.00	0.00	0.00	9,136.82	-1,150.09	-1,411.29	1,820.56	0.00	0.00	0.00
9,600.00	0.00	0.00	9,236.82	-1,150.09	-1,411.29	1,820.56	0.00	0.00	0.00
9,617.18	0.00	0.00	9,254.00	-1,150.09	-1,411.29	1,820.56	0.00	0.00	0.00
TD at 9617.18 - PBHL_NBU 1021-2901CS									

Design Targets									
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
PBHL_NBU 1021-2901CS - plan hits target center - Circle (radius 25.00)	0.00	0.00	9,254.00	-1,150.09	-1,411.29	14,497,787.04	2,040,895.48	39° 54' 48.967 N	109° 34' 18.628 W

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)	
2,114.14	2,022.00	8 5/8"	8.625	11.000	

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
950.58	945.00	GREEN RIVER			
4,462.13	4,150.00	WASATCH			
7,382.18	7,019.00	MESAVERDE			

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
300.00	300.00	0.00	0.00	Start Build 2.00
1,550.00	1,510.71	-169.56	-208.07	Start 3037.60 hold at 1550.00 MD
4,587.60	4,263.72	-980.53	-1,203.22	Start Drop -2.00
5,837.60	5,474.43	-1,150.09	-1,411.29	Start 3779.57 hold at 5837.60 MD
9,617.18	9,254.00	-1,150.09	-1,411.29	TD at 9617.18



# **US ROCKIES REGION PLANNING**

**UTAH - UTM (feet), NAD27, Zone 12N**

**UINTAH\_NBU 1021-29I PAD**

**NBU 1021-29O1CS**

**NBU 1021-29O1CS**

**Plan: PLAN #1 1-26-11 RHS**

## **Survey Report - Geographic**

**26 January, 2011**







**SDI**  
Survey Report - Geographic



<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well NBU 1021-29O1CS
<b>Project:</b>	UTAH - UTM (feet), NAD27, Zone 12N	<b>TVD Reference:</b>	GL 5253 & KB 4' @ 5257.00ft (ASSUMED)
<b>Site:</b>	UINTAH_NBU 1021-29I PAD	<b>MD Reference:</b>	GL 5253 & KB 4' @ 5257.00ft (ASSUMED)
<b>Well:</b>	NBU 1021-29O1CS	<b>North Reference:</b>	True
<b>Wellbore:</b>	NBU 1021-29O1CS	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	PLAN #1 1-26-11 RHS	<b>Database:</b>	EDM5000-RobertS-Local

<b>Project</b>	UTAH - UTM (feet), NAD27, Zone 12N		
<b>Map System:</b>	Universal Transverse Mercator (US Survey Feet)	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	NAD 1927 (NADCON CONUS)		
<b>Map Zone:</b>	Zone 12N (114 W to 108 W)		

<b>Site</b>	UINTAH_NBU 1021-29I PAD, SECTION 29 T10S R21E		
<b>Site Position:</b>		<b>Northing:</b>	14,498,964.15 usft
<b>From:</b>	Lat/Long	<b>Easting:</b>	2,042,297.02 usft
<b>Position Uncertainty:</b>	0.00 ft	<b>Slot Radius:</b>	13.200 in
		<b>Latitude:</b>	39° 55' 0.379 N
		<b>Longitude:</b>	109° 34' 0.397 W
		<b>Grid Convergence:</b>	0.92 °

<b>Well</b>	NBU 1021-29O1CS, 1984 FSL 418 FEL		
<b>Well Position</b>	<b>+N/-S</b>	0.00 ft	<b>Northing:</b> 14,498,959.63 usft
	<b>+E/-W</b>	0.00 ft	<b>Easting:</b> 2,042,288.12 usft
<b>Position Uncertainty</b>	0.00 ft	<b>Wellhead Elevation:</b>	ft
		<b>Latitude:</b>	39° 55' 0.336 N
		<b>Longitude:</b>	109° 34' 0.512 W
		<b>Ground Level:</b>	5,253.00 ft

<b>Wellbore</b>	NBU 1021-29O1CS				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	01/26/2011	11.14	65.80	52,310

<b>Design</b>	PLAN #1 1-26-11 RHS			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PLAN	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>
	0.00	0.00	0.00	230.82

<b>Survey Tool Program</b>	<b>Date</b>	01/26/2011		
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
0.00	9,617.18	PLAN #1 1-26-11 RHS (NBU 1021-29O1C)	SDI MWD	SDI MWD - Standard ver 1.0.1

<b>Planned Survey</b>									
<b>Measured Depth (ft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Map Northing (usft)</b>	<b>Map Easting (usft)</b>	<b>Latitude</b>	<b>Longitude</b>
0.00	0.00	0.00	0.00	0.00	0.00	14,498,959.63	2,042,288.12	39° 55' 0.336 N	109° 34' 0.512 W
100.00	0.00	0.00	100.00	0.00	0.00	14,498,959.63	2,042,288.12	39° 55' 0.336 N	109° 34' 0.512 W
200.00	0.00	0.00	200.00	0.00	0.00	14,498,959.63	2,042,288.12	39° 55' 0.336 N	109° 34' 0.512 W
300.00	0.00	0.00	300.00	0.00	0.00	14,498,959.63	2,042,288.12	39° 55' 0.336 N	109° 34' 0.512 W
<b>Start Build 2.00</b>									
400.00	2.00	230.82	399.98	-1.10	-1.35	14,498,958.51	2,042,286.79	39° 55' 0.325 N	109° 34' 0.530 W
500.00	4.00	230.82	499.84	-4.41	-5.41	14,498,955.14	2,042,282.78	39° 55' 0.292 N	109° 34' 0.582 W
600.00	6.00	230.82	599.45	-9.91	-12.17	14,498,949.52	2,042,276.12	39° 55' 0.238 N	109° 34' 0.669 W
700.00	8.00	230.82	698.70	-17.61	-21.61	14,498,941.67	2,042,266.79	39° 55' 0.162 N	109° 34' 0.790 W
800.00	10.00	230.82	797.47	-27.49	-33.74	14,498,931.60	2,042,254.83	39° 55' 0.064 N	109° 34' 0.945 W
900.00	12.00	230.82	895.62	-39.55	-48.53	14,498,919.31	2,042,240.23	39° 54' 59.945 N	109° 34' 1.135 W



**SDI**  
Survey Report - Geographic



<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well NBU 1021-2901CS
<b>Project:</b>	UTAH - UTM (feet), NAD27, Zone 12N	<b>TVD Reference:</b>	GL 5253 & KB 4' @ 5257.00ft (ASSUMED)
<b>Site:</b>	UINTAH_NBU 1021-29I PAD	<b>MD Reference:</b>	GL 5253 & KB 4' @ 5257.00ft (ASSUMED)
<b>Well:</b>	NBU 1021-2901CS	<b>North Reference:</b>	True
<b>Wellbore:</b>	NBU 1021-2901CS	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	PLAN #1 1-26-11 RHS	<b>Database:</b>	EDM5000-RobertS-Local

**Planned Survey**

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
950.58	13.01	230.82	945.00	-46.47	-57.02	14,498,912.26	2,042,231.86	39° 54' 59.877 N	109° 34' 1.244 W
<b>GREEN RIVER</b>									
1,000.00	14.00	230.82	993.06	-53.76	-65.97	14,498,904.82	2,042,223.03	39° 54' 59.805 N	109° 34' 1.359 W
1,100.00	16.00	230.82	1,089.64	-70.11	-86.03	14,498,888.15	2,042,203.23	39° 54' 59.643 N	109° 34' 1.617 W
1,200.00	18.00	230.82	1,185.27	-88.58	-108.69	14,498,869.32	2,042,180.86	39° 54' 59.460 N	109° 34' 1.908 W
1,300.00	20.00	230.82	1,279.82	-109.14	-133.93	14,498,848.35	2,042,155.96	39° 54' 59.257 N	109° 34' 2.232 W
1,400.00	22.00	230.82	1,373.17	-131.78	-161.71	14,498,825.27	2,042,128.55	39° 54' 59.033 N	109° 34' 2.588 W
1,500.00	24.00	230.82	1,465.21	-156.46	-192.00	14,498,800.11	2,042,098.66	39° 54' 58.789 N	109° 34' 2.977 W
1,550.00	25.00	230.82	1,510.71	-169.56	-208.07	14,498,786.75	2,042,082.80	39° 54' 58.660 N	109° 34' 3.183 W
<b>Start 3037.60 hold at 1550.00 MD</b>									
1,600.00	25.00	230.82	1,556.03	-182.91	-224.45	14,498,773.14	2,042,066.64	39° 54' 58.528 N	109° 34' 3.394 W
1,700.00	25.00	230.82	1,646.66	-209.61	-257.21	14,498,745.92	2,042,034.31	39° 54' 58.264 N	109° 34' 3.814 W
1,800.00	25.00	230.82	1,737.29	-236.30	-289.97	14,498,718.70	2,042,001.98	39° 54' 58.000 N	109° 34' 4.235 W
1,900.00	25.00	230.82	1,827.92	-263.00	-322.73	14,498,691.48	2,041,969.65	39° 54' 57.736 N	109° 34' 4.655 W
2,000.00	25.00	230.82	1,918.55	-289.70	-355.49	14,498,664.26	2,041,937.32	39° 54' 57.472 N	109° 34' 5.076 W
2,100.00	25.00	230.82	2,009.18	-316.40	-388.26	14,498,637.04	2,041,905.00	39° 54' 57.208 N	109° 34' 5.496 W
2,114.14	25.00	230.82	2,022.00	-320.17	-392.89	14,498,633.19	2,041,900.42	39° 54' 57.171 N	109° 34' 5.556 W
<b>8 5/8"</b>									
2,200.00	25.00	230.82	2,099.81	-343.09	-421.02	14,498,609.82	2,041,872.67	39° 54' 56.945 N	109° 34' 5.917 W
2,300.00	25.00	230.82	2,190.44	-369.79	-453.78	14,498,582.60	2,041,840.34	39° 54' 56.681 N	109° 34' 6.337 W
2,400.00	25.00	230.82	2,281.07	-396.49	-486.54	14,498,555.38	2,041,808.01	39° 54' 56.417 N	109° 34' 6.758 W
2,500.00	25.00	230.82	2,371.70	-423.19	-519.30	14,498,528.16	2,041,775.68	39° 54' 56.153 N	109° 34' 7.178 W
2,600.00	25.00	230.82	2,462.34	-449.89	-552.06	14,498,500.94	2,041,743.35	39° 54' 55.889 N	109° 34' 7.599 W
2,700.00	25.00	230.82	2,552.97	-476.58	-584.82	14,498,473.72	2,041,711.03	39° 54' 55.625 N	109° 34' 8.019 W
2,800.00	25.00	230.82	2,643.60	-503.28	-617.58	14,498,446.50	2,041,678.70	39° 54' 55.361 N	109° 34' 8.440 W
2,900.00	25.00	230.82	2,734.23	-529.98	-650.34	14,498,419.28	2,041,646.37	39° 54' 55.097 N	109° 34' 8.860 W
3,000.00	25.00	230.82	2,824.86	-556.68	-683.11	14,498,392.06	2,041,614.04	39° 54' 54.833 N	109° 34' 9.281 W
3,100.00	25.00	230.82	2,915.49	-583.37	-715.87	14,498,364.84	2,041,581.71	39° 54' 54.569 N	109° 34' 9.701 W
3,200.00	25.00	230.82	3,006.12	-610.07	-748.63	14,498,337.62	2,041,549.38	39° 54' 54.305 N	109° 34' 10.122 W
3,300.00	25.00	230.82	3,096.75	-636.77	-781.39	14,498,310.40	2,041,517.06	39° 54' 54.042 N	109° 34' 10.542 W
3,400.00	25.00	230.82	3,187.38	-663.47	-814.15	14,498,283.18	2,041,484.73	39° 54' 53.778 N	109° 34' 10.963 W
3,500.00	25.00	230.82	3,278.01	-690.17	-846.91	14,498,255.96	2,041,452.40	39° 54' 53.514 N	109° 34' 11.383 W
3,600.00	25.00	230.82	3,368.64	-716.86	-879.67	14,498,228.74	2,041,420.07	39° 54' 53.250 N	109° 34' 11.804 W
3,700.00	25.00	230.82	3,459.27	-743.56	-912.43	14,498,201.52	2,041,387.74	39° 54' 52.986 N	109° 34' 12.224 W
3,800.00	25.00	230.82	3,549.90	-770.26	-945.20	14,498,174.30	2,041,355.41	39° 54' 52.722 N	109° 34' 12.645 W
3,900.00	25.00	230.82	3,640.54	-796.96	-977.96	14,498,147.08	2,041,323.09	39° 54' 52.458 N	109° 34' 13.066 W
4,000.00	25.00	230.82	3,731.17	-823.65	-1,010.72	14,498,119.86	2,041,290.76	39° 54' 52.194 N	109° 34' 13.486 W
4,100.00	25.00	230.82	3,821.80	-850.35	-1,043.48	14,498,092.64	2,041,258.43	39° 54' 51.930 N	109° 34' 13.907 W
4,200.00	25.00	230.82	3,912.43	-877.05	-1,076.24	14,498,065.42	2,041,226.10	39° 54' 51.666 N	109° 34' 14.327 W
4,300.00	25.00	230.82	4,003.06	-903.75	-1,109.00	14,498,038.20	2,041,193.77	39° 54' 51.402 N	109° 34' 14.748 W
4,400.00	25.00	230.82	4,093.69	-930.44	-1,141.76	14,498,010.98	2,041,161.44	39° 54' 51.138 N	109° 34' 15.168 W
4,462.13	25.00	230.82	4,150.00	-947.03	-1,162.12	14,497,994.07	2,041,141.36	39° 54' 50.975 N	109° 34' 15.429 W
<b>WASATCH</b>									
4,500.00	25.00	230.82	4,184.32	-957.14	-1,174.52	14,497,983.76	2,041,129.12	39° 54' 50.875 N	109° 34' 15.589 W
4,587.60	25.00	230.82	4,263.72	-980.53	-1,203.22	14,497,959.91	2,041,100.80	39° 54' 50.643 N	109° 34' 15.957 W
<b>Start Drop -2.00</b>									
4,600.00	24.75	230.82	4,274.96	-983.82	-1,207.27	14,497,956.56	2,041,096.81	39° 54' 50.611 N	109° 34' 16.009 W
4,700.00	22.75	230.82	4,366.49	-1,009.27	-1,238.49	14,497,930.61	2,041,066.00	39° 54' 50.359 N	109° 34' 16.410 W
4,800.00	20.75	230.82	4,459.36	-1,032.68	-1,267.21	14,497,906.75	2,041,037.65	39° 54' 50.128 N	109° 34' 16.778 W
4,900.00	18.75	230.82	4,553.47	-1,054.03	-1,293.41	14,497,884.98	2,041,011.80	39° 54' 49.917 N	109° 34' 17.115 W
5,000.00	16.75	230.82	4,648.71	-1,073.29	-1,317.04	14,497,865.34	2,040,988.48	39° 54' 49.726 N	109° 34' 17.418 W
5,100.00	14.75	230.82	4,744.95	-1,090.43	-1,338.09	14,497,847.86	2,040,967.71	39° 54' 49.557 N	109° 34' 17.688 W
5,200.00	12.75	230.82	4,842.08	-1,105.45	-1,356.52	14,497,832.55	2,040,949.53	39° 54' 49.408 N	109° 34' 17.925 W
5,300.00	10.75	230.82	4,939.97	-1,118.32	-1,372.30	14,497,819.43	2,040,933.95	39° 54' 49.281 N	109° 34' 18.127 W



**SDI**  
Survey Report - Geographic



<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well NBU 1021-2901CS
<b>Project:</b>	UTAH - UTM (feet), NAD27, Zone 12N	<b>TVD Reference:</b>	GL 5253 & KB 4' @ 5257.00ft (ASSUMED)
<b>Site:</b>	UINTAH_NBU 1021-29I PAD	<b>MD Reference:</b>	GL 5253 & KB 4' @ 5257.00ft (ASSUMED)
<b>Well:</b>	NBU 1021-2901CS	<b>North Reference:</b>	True
<b>Wellbore:</b>	NBU 1021-2901CS	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	PLAN #1 1-26-11 RHS	<b>Database:</b>	EDM5000-RobertS-Local

**Planned Survey**

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
5,400.00	8.75	230.82	5,038.52	-1,129.02	-1,385.43	14,497,808.52	2,040,920.99	39° 54' 49.176 N	109° 34' 18.296 W
5,500.00	6.75	230.82	5,137.61	-1,137.54	-1,395.89	14,497,799.83	2,040,910.68	39° 54' 49.091 N	109° 34' 18.430 W
5,600.00	4.75	230.82	5,237.10	-1,143.87	-1,403.66	14,497,793.38	2,040,903.01	39° 54' 49.029 N	109° 34' 18.530 W
5,700.00	2.75	230.82	5,336.88	-1,148.00	-1,408.73	14,497,789.16	2,040,898.00	39° 54' 48.988 N	109° 34' 18.595 W
5,800.00	0.75	230.82	5,436.83	-1,149.93	-1,411.10	14,497,787.20	2,040,895.66	39° 54' 48.969 N	109° 34' 18.625 W
5,837.60	0.00	0.00	5,474.43	-1,150.09	-1,411.29	14,497,787.04	2,040,895.48	39° 54' 48.967 N	109° 34' 18.628 W
<b>Start 3779.57 hold at 5837.60 MD</b>									
5,900.00	0.00	0.00	5,536.82	-1,150.09	-1,411.29	14,497,787.04	2,040,895.48	39° 54' 48.967 N	109° 34' 18.628 W
6,000.00	0.00	0.00	5,636.82	-1,150.09	-1,411.29	14,497,787.04	2,040,895.48	39° 54' 48.967 N	109° 34' 18.628 W
6,100.00	0.00	0.00	5,736.82	-1,150.09	-1,411.29	14,497,787.04	2,040,895.48	39° 54' 48.967 N	109° 34' 18.628 W
6,200.00	0.00	0.00	5,836.82	-1,150.09	-1,411.29	14,497,787.04	2,040,895.48	39° 54' 48.967 N	109° 34' 18.628 W
6,300.00	0.00	0.00	5,936.82	-1,150.09	-1,411.29	14,497,787.04	2,040,895.48	39° 54' 48.967 N	109° 34' 18.628 W
6,400.00	0.00	0.00	6,036.82	-1,150.09	-1,411.29	14,497,787.04	2,040,895.48	39° 54' 48.967 N	109° 34' 18.628 W
6,500.00	0.00	0.00	6,136.82	-1,150.09	-1,411.29	14,497,787.04	2,040,895.48	39° 54' 48.967 N	109° 34' 18.628 W
6,600.00	0.00	0.00	6,236.82	-1,150.09	-1,411.29	14,497,787.04	2,040,895.48	39° 54' 48.967 N	109° 34' 18.628 W
6,700.00	0.00	0.00	6,336.82	-1,150.09	-1,411.29	14,497,787.04	2,040,895.48	39° 54' 48.967 N	109° 34' 18.628 W
6,800.00	0.00	0.00	6,436.82	-1,150.09	-1,411.29	14,497,787.04	2,040,895.48	39° 54' 48.967 N	109° 34' 18.628 W
6,900.00	0.00	0.00	6,536.82	-1,150.09	-1,411.29	14,497,787.04	2,040,895.48	39° 54' 48.967 N	109° 34' 18.628 W
7,000.00	0.00	0.00	6,636.82	-1,150.09	-1,411.29	14,497,787.04	2,040,895.48	39° 54' 48.967 N	109° 34' 18.628 W
7,100.00	0.00	0.00	6,736.82	-1,150.09	-1,411.29	14,497,787.04	2,040,895.48	39° 54' 48.967 N	109° 34' 18.628 W
7,200.00	0.00	0.00	6,836.82	-1,150.09	-1,411.29	14,497,787.04	2,040,895.48	39° 54' 48.967 N	109° 34' 18.628 W
7,300.00	0.00	0.00	6,936.82	-1,150.09	-1,411.29	14,497,787.04	2,040,895.48	39° 54' 48.967 N	109° 34' 18.628 W
7,382.18	0.00	0.00	7,019.00	-1,150.09	-1,411.29	14,497,787.04	2,040,895.48	39° 54' 48.967 N	109° 34' 18.628 W
<b>MESAVERDE</b>									
7,400.00	0.00	0.00	7,036.82	-1,150.09	-1,411.29	14,497,787.04	2,040,895.48	39° 54' 48.967 N	109° 34' 18.628 W
7,500.00	0.00	0.00	7,136.82	-1,150.09	-1,411.29	14,497,787.04	2,040,895.48	39° 54' 48.967 N	109° 34' 18.628 W
7,600.00	0.00	0.00	7,236.82	-1,150.09	-1,411.29	14,497,787.04	2,040,895.48	39° 54' 48.967 N	109° 34' 18.628 W
7,700.00	0.00	0.00	7,336.82	-1,150.09	-1,411.29	14,497,787.04	2,040,895.48	39° 54' 48.967 N	109° 34' 18.628 W
7,800.00	0.00	0.00	7,436.82	-1,150.09	-1,411.29	14,497,787.04	2,040,895.48	39° 54' 48.967 N	109° 34' 18.628 W
7,900.00	0.00	0.00	7,536.82	-1,150.09	-1,411.29	14,497,787.04	2,040,895.48	39° 54' 48.967 N	109° 34' 18.628 W
8,000.00	0.00	0.00	7,636.82	-1,150.09	-1,411.29	14,497,787.04	2,040,895.48	39° 54' 48.967 N	109° 34' 18.628 W
8,100.00	0.00	0.00	7,736.82	-1,150.09	-1,411.29	14,497,787.04	2,040,895.48	39° 54' 48.967 N	109° 34' 18.628 W
8,200.00	0.00	0.00	7,836.82	-1,150.09	-1,411.29	14,497,787.04	2,040,895.48	39° 54' 48.967 N	109° 34' 18.628 W
8,300.00	0.00	0.00	7,936.82	-1,150.09	-1,411.29	14,497,787.04	2,040,895.48	39° 54' 48.967 N	109° 34' 18.628 W
8,400.00	0.00	0.00	8,036.82	-1,150.09	-1,411.29	14,497,787.04	2,040,895.48	39° 54' 48.967 N	109° 34' 18.628 W
8,500.00	0.00	0.00	8,136.82	-1,150.09	-1,411.29	14,497,787.04	2,040,895.48	39° 54' 48.967 N	109° 34' 18.628 W
8,600.00	0.00	0.00	8,236.82	-1,150.09	-1,411.29	14,497,787.04	2,040,895.48	39° 54' 48.967 N	109° 34' 18.628 W
8,700.00	0.00	0.00	8,336.82	-1,150.09	-1,411.29	14,497,787.04	2,040,895.48	39° 54' 48.967 N	109° 34' 18.628 W
8,800.00	0.00	0.00	8,436.82	-1,150.09	-1,411.29	14,497,787.04	2,040,895.48	39° 54' 48.967 N	109° 34' 18.628 W
8,900.00	0.00	0.00	8,536.82	-1,150.09	-1,411.29	14,497,787.04	2,040,895.48	39° 54' 48.967 N	109° 34' 18.628 W
9,000.00	0.00	0.00	8,636.82	-1,150.09	-1,411.29	14,497,787.04	2,040,895.48	39° 54' 48.967 N	109° 34' 18.628 W
9,100.00	0.00	0.00	8,736.82	-1,150.09	-1,411.29	14,497,787.04	2,040,895.48	39° 54' 48.967 N	109° 34' 18.628 W
9,200.00	0.00	0.00	8,836.82	-1,150.09	-1,411.29	14,497,787.04	2,040,895.48	39° 54' 48.967 N	109° 34' 18.628 W
9,300.00	0.00	0.00	8,936.82	-1,150.09	-1,411.29	14,497,787.04	2,040,895.48	39° 54' 48.967 N	109° 34' 18.628 W
9,400.00	0.00	0.00	9,036.82	-1,150.09	-1,411.29	14,497,787.04	2,040,895.48	39° 54' 48.967 N	109° 34' 18.628 W
9,500.00	0.00	0.00	9,136.82	-1,150.09	-1,411.29	14,497,787.04	2,040,895.48	39° 54' 48.967 N	109° 34' 18.628 W
9,600.00	0.00	0.00	9,236.82	-1,150.09	-1,411.29	14,497,787.04	2,040,895.48	39° 54' 48.967 N	109° 34' 18.628 W
9,617.18	0.00	0.00	9,254.00	-1,150.09	-1,411.29	14,497,787.04	2,040,895.48	39° 54' 48.967 N	109° 34' 18.628 W
<b>TD at 9617.18 - PBHL_NBU 1021-2901CS</b>									



**SDI**  
Survey Report - Geographic



<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well NBU 1021-2901CS
<b>Project:</b>	UTAH - UTM (feet), NAD27, Zone 12N	<b>TVD Reference:</b>	GL 5253 & KB 4' @ 5257.00ft (ASSUMED)
<b>Site:</b>	UINTAH_NBU 1021-29I PAD	<b>MD Reference:</b>	GL 5253 & KB 4' @ 5257.00ft (ASSUMED)
<b>Well:</b>	NBU 1021-2901CS	<b>North Reference:</b>	True
<b>Wellbore:</b>	NBU 1021-2901CS	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	PLAN #1 1-26-11 RHS	<b>Database:</b>	EDM5000-RobertS-Local

Design Targets									
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
PBHL_NBU 1021-2901CS - plan hits target center - Circle (radius 25.00)	0.00	0.00	9,254.00	-1,150.09	-1,411.29	14,497,787.04	2,040,895.48	39° 54' 48.967 N	109° 34' 18.628 W

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)	
2,114.14	2,022.00	8 5/8"	8.625	11.000	

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
950.58	945.00	GREEN RIVER			
4,462.13	4,150.00	WASATCH			
7,382.18	7,019.00	MESAVERDE			

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
300	300	0	0	Start Build 2.00	
1550	1511	-170	-208	Start 3037.60 hold at 1550.00 MD	
4588	4264	-981	-1203	Start Drop -2.00	
5838	5474	-1150	-1411	Start 3779.57 hold at 5837.60 MD	
9617	9254	-1150	-1411	TD at 9617.18	

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_

**NBU 1021-29I1CS**

Surface: 1,988' FSL 409' FEL (NE/4SE/4)

BHL: 2,173' FSL 503' FEL (NE/4SE/4)

**NBU 1021-29J1CS**

Surface: 1,980' FSL 427' FEL (NE/4SE/4)

BHL: 2,175' FSL 1,844' FEL (NW/4SE/4)

**NBU 1021-29O1CS**

Surface: 1,984' FSL 418' FEL (NE/4SE/4)

BHL: 837' FSL 1,849' FEL (SW/4SE/4)

**NBU 1021-29P1CS**

Surface: 1,993' FSL 400' FEL (NE/4SE/4)

BHL: 836' FSL 504' FEL (SE/4SE/4)

Pad: NBU 1021-29I

Section 29 T10S R21E

Mineral Lease: ML 21330

Uintah County, Utah

Operator: Kerr-McGee Oil & Gas Onshore LP

***MULTI-POINT SURFACE USE PLAN of OPERATIONS (SUPO)***

This SUPO contains surface operating procedures for Kerr-McGee Oil & Gas Onshore LP (KMG), a wholly owned subsidiary of Anadarko Petroleum Corporation (APC) pertaining to actions that involve the State of Utah School and Institutional Trust Lands Administration (SITLA) in the development of minerals leased to APC/KMG (including, but not limited to, APDs/SULAs/ROEs/ROWs and/or easements).

See associated Utah Division of Oil, Gas, and Mining (UDOGM) Form 3(s), plats, maps, and other attachments for site-specific information on projects represented herein.

In accordance with Utah Oil & Gas Conservation Rule R649-3-11 pertaining to Directional Drilling, these wells will be directionally drilled. Refer to Topo Map A for directions to the location and Topo Maps A and B for location of access roads within a 2-mile radius.

**A. Existing Roads:**

Existing roads consist of county roads and improved/unimproved lease roads. APC/KMG will maintain existing roads in a condition that is the same as or better than before operations began and in a safe and usable condition. Maintenance of existing roads will continue until final abandonment and reclamation of well pads and/or other facilities. The road maintenance may include, but is not limited to, blading, ditching, culvert installation/cleanout, surfacing, and dust control.

Typically, roads, gathering lines and electrical distribution lines will occupy common disturbance corridors and roadways will be used as working space. All disturbances located in the same corridor will overlap each other to the maximum extent possible; in no case will the maximum disturbance width of the access road and utility corridors exceed 50', unless otherwise approved.

**B. Planned Access Roads:**

Approximately  $\pm 275'$  (0.1 miles) of new road is proposed (see Topo Map B). Applicable Uintah County encroachment and/or pipeline crossing permits will be obtained prior to construction/development. No other pipelines will be crossed at this location.

Where roads are new or to be reconstructed, they will be located, designed, and maintained to meet the standards of SITLA and other commonly accepted Best Management Practices (BMPs). If a new road/corridor were to cross a water of the United States, KMG will adhere to the requirements of applicable Nationwide or Individual Permits of the Department of Army Corps of Engineers.

Turnouts; major cut and fills; culverts; bridges; gates; cattle guards; low water crossings; or modifications needed to existing infrastructure/facilities were determined at the on-site and, as applicable, are typically shown on attached Exhibits and Topo maps.

**C. Location of Existing and Proposed Facilities:**

Production facilities (see Well Pad Design Summary and Facilities Diagram):

Production facilities will be installed on the disturbed portion of each well pad and may include bermed components (typically excluding dehy's and/or separators) that contain fluids (i.e. production tanks, produced liquids tanks). The berms will be constructed of compacted subsoil or corrugated metal, impervious, designed to hold 110% of the capacity of the largest tank, and be independent of the back cut. All permanent (on-site six months or longer) aboveground structures constructed or installed, including pumping units, will be painted a flat, non-reflective, earth-tone color chosen at the onsite in coordination with SITLA.

Production tanks will be constructed, maintained, and operated to prevent unauthorized surface or subsurface discharges of liquids and to prevent livestock or wildlife entry. The tanks are not to be used for disposal of liquids from additional sources without prior approval of UDOGM.

Gathering facilities:

The following pipeline transmission facilities will apply if the well is productive (see Topo D):

The total gas gathering (steel line pipe with fusion bond epoxy coating) pipeline distances from the meter to the tie in point is  $\pm 2,275'$  and the individual segments are broken up as follows:

$\pm 475'$  (0.1 miles) –New 6" buried gas pipeline from the meter to the edge of the pad.

$\pm 255'$  (0.05 miles) –New 6" buried gas pipeline from the edge of pad to the road intersection.

$\pm 1,545'$  (0.3 miles) –New 12" buried gas pipeline from the road intersection to the previously proposed 16" gas pipeline.

The total liquid gathering pipeline distance from the separator to the tie in point is  $\pm 2,275'$  and the individual segments are broken up as follows:

- $\pm 475'$  (0.1 miles) –New 6" buried liquid pipeline from the separator to the edge of the pad.
- $\pm 255'$  (0.05 miles) –New 6" buried liquid pipeline from the edge of pad to the road intersection.
- $\pm 1,545'$  (0.3 miles) –New 6" buried liquid pipeline from the road intersection to the previously proposed liquid pipeline.

The liquid gathering lines will be made of polyethylene or a composite polyethylene/steel or polyethylene/fiberglass that is not subject to internal or external pipe corrosion. The content of the produced fluids to be transferred by the liquid gathering system will be approximately 92% produced water and 8% condensate. Trunk line valve connections for the water gathering system will be below ground but accessible from the surface in order to prevent freezing during winter time.

The proposed pipelines will be buried and will include gas gathering and liquid gathering pipelines in the same trench. Where the pipeline is adjacent to the road or well pad, the road and/or well pad will be utilized for construction activities and staging. Kerr-McGee requests a permanent 30' right-of-way adjacent to the road for life-of-project for maintenance, repairs, and/or upgrades, no additional right-of-way will be needed beyond the 30'. Where the pipeline is not adjacent to the road or well pad, Kerr-McGee requests a temporary 45' construction right-of-way and 30' permanent right-of-way.

The proposed trench width for the pipeline would range from 18-48 inches and will be excavated to a depth of 48 to 60 inches of normal soil cover or 24 inches of cover in consolidated rock. During construction blasting may occur along the proposed right-of-way where trenching equipment cannot cut into the bedrock. Large debris and rocks removed from the earth during trenching and blasting that could not be returned to the trench would be distributed evenly and naturally in the project area. The proposed pipelines will be pressure tested pneumatically (depending on size) or with fluids (either fresh or produced). If fluids are used, there will be no discharge to the surface.

Pipeline signs will be installed along the right-of-way to indicate the pipeline proximity, ownership, and to provide emergency contact phone numbers. Above ground valves, T's, and/or cathodic protection will be installed at various locations for connection, corrosion prevention and/or for safety purposes.

**D. Location and Type of Water Supply:**

Water for drilling purposes will be obtained from one of the following sources:

- Dalbo Inc.'s underground well located in Ouray, Utah, Sec. 32 T4S R3E, Water User Claim number 43-8496, application number 53617.
- Price Water Pumping Inc. Green River and White River, various sources, Water Right Number 49-1659, application number: a35745.

Water will be hauled to location over the roads marked on Maps A and B.



No water well is to be drilled on this lease.

**E. Source of Construction Materials:**

Construction operations will typically be completed with native materials found on location. If needed, construction materials that must be imported to the site (mineral material aggregate, soils or materials suitable for fill/surfacing) will be obtained from a nearby permitted source and described in subsequent Sundry requests. No construction materials will be removed from State lands without prior approval from SITLA.

**F. Methods of Handling Waste Materials:**

Should the well be productive, produced water will be contained in a water tank and will be transported by pipeline and/or truck to an approved disposal sites facilities and/or Salt Water Disposal (SWD) injection well. Currently, those facilities are:

RNI in Sec. 5 T9S R22E  
Ace Oilfield in Sec. 2 T6S R20E  
MC&MC in Sec. 12 T6S R19E  
Pipeline Facility in Sec. 36 T9S R20E  
Goat Pasture Evaporation Pond in SW/4 Sec. 16 T10S R22E  
Bonanza Evaporation Pond in Sec. 2 T10S R23E  
Ouray #1 SWD in Sec. 1 T9S R21E  
NBU 159 SWD in Sec. 35 T9S R21E  
CIGE 112D SWD in Sec. 19 T9S R21E  
CIGE 114 SWD in Sec. 34 T9S R21E  
NBU 921-34K SWD in Sec. 34 T9S R21E  
NBU 921-33F SWD in Sec. 33 T9S R21E  
NBU 921-34L SWD in Sec. 34 T9S R21E

Drill cuttings and/or fluids will be contained in the reserve/frac pit. Cuttings will be buried in pit(s) upon closure. Unless otherwise approved, no oil or other oil-based drilling additives, chromium/metals-based, or saline muds will be used during drilling. Only fresh water (as specified above), biodegradable polymer soap, bentonite clay, and/or non-toxic additives will be used in the mud system.

Pits will be constructed to minimize the accumulation of surface runoff. Should fluid hydrocarbons be encountered during drilling, completions or well testing, product will either be contained in test tanks on the well site or evacuated by vacuum trucks and transported to an approved disposal/sales facility. Should petroleum hydrocarbons unexpectedly be released into a pit, they will be removed as soon as practical but in no case will they remain longer than 72 hours unless an alternate is approved by SITLA. Should timely removal prove infeasible, the pit will be netted with mesh no larger than 1 inch until such time as hydrocarbons can be removed. Hydrocarbon removal will also take place prior to the closure of the pit, unless authorization is provided for disposal via alternative pit closure methods (e.g. solidification).



The reserve and/or fracture stimulation pit will be lined with a synthetic material 20-mil or thicker. The liner will be installed over smooth fill subgrade that is free of pockets, loose rocks, or other materials (i.e. sand, sifted dirt, bentonite, straw, etc.) that could damage the liner. Any additional pits necessary to subsequent operations, such as temporary flare or workover pits, will be contained within the originally approved well pad and disturbance boundaries. Such temporary pits will be backfilled and reclaimed within 180 days of completion of work at a well location.

For the protection of livestock and wildlife, all open pits and cellars will be fenced/covered to prevent wildlife or livestock entry. Total height of pit fencing will be at least 42 inches and corner posts will be cemented and/or braced in such a manner as to keep the fence tight at all times. Standard steel, wood, or pipe posts shall be used between the corner braces. Maximum distance between any 2 fence posts shall be no greater than 16 feet.

Pits containing drilling cuttings, mud, and/or completions fluids will be allowed to dry. Any free fluids remaining after six (6) months from reaching total depth, date of completion, and/or determination of inactivity will be removed (as weather conditions allow) to an approved site and the pit reclaimed. Additional drying methods may include fly-ash solidification or sprinkler evaporation. Installation and operation of any sprinklers, pumps, and equipment will ensure that water spray or mist does not drift. Reserve pit liners will be cut off or folded as near to the mud surface as possible and as safety considerations allow and buried on location.

No garbage or non-exempt substances as defined by Resource Conservation and Recovery Act (RCRA) subtitle C will be placed in the reserve pit. All refuse generated during construction, drilling, completion, and well testing activities will be contained in an enclosed receptacle, removed from the drill locations promptly, and transported to an approved disposal facility.

Portable, self-contained chemical toilets and/or sewage processing facilities will be provided for human waste disposal. Upon completion of operations, or as required, the toilet holding tanks will be pumped and the contents disposed of in an approved sewage disposal facility. All applicable regulations pertaining to disposal of human and solid waste will be observed.

Any undesirable event, accidental release, or in excess of reportable quantities will be managed according to the notification requirements of UDOGMs "Reporting Oil and Gas Undesirable Events" rule, and, where State wells are participatory to a Federal agreement, according to NTL-3A.

### **Materials Management**

Hazardous materials above reportable quantities will not be produced by drilling or completing proposed wells or constructing the pipelines/facilities. The term "hazardous materials" as used here means: (1) any substance, pollutant, or containment listed as hazardous under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, as amended 42 U.S.C. 9601 et seq., and the regulations

issued under CERCLA; and (2) any hazardous waste as defined in RCRA of 1976, as amended. In addition, no extremely hazardous substance, as defined in 40 CFR 355, in threshold planning quantities, would be used, produced, stored, transported, or disposed of while producing any well.

Chemicals subject to reporting under Title III of the Superfund Amendments and Reauthorization Act (SARA) in quantities of 10,000 pounds or more may be produced and/or stored at production facilities and may be kept in limited quantities on drilling sites and well locations for short periods of time during drilling or completion activities.

**G. Ancillary Facilities:**

None are anticipated.

**H. Well Site Layout (see Well Pad Design Summary):**

The location, orientation and aerial extent of each drill pad; reserve/completion/flare pit; access road ingress/egress points, drilling rig, dikes/ditches, existing wells/infrastructure; proposed cuts and fills; and topsoil and spoil material stockpile locations are depicted on the exhibits for each project, where applicable. Site-specific conditions may require slight deviation in actual equipment and facility layout; however, the area of disturbance, as described in the survey, will not be exceeded.

Coordinates are provided in the National Spatial Reference System, North American Datum, 1983 (NAD83) or latest edition. Distances are depicted on each plat to the nearest two adjacent section lines.

**I. Plans for Reclamation of the Surface:**

Surface reclamation will be undertaken in two phases: interim and final. Interim reclamation is conducted following well completion and extends through the period of production. This reclamation is for the area of the well pad that is not required for production activities. Final reclamation is conducted following well plugging/conversion and/or facility abandonment processes.

Reclamation activities in both phases may include but are not limited to: re-contouring or re-configuration of topographic surfaces, restoration of drainage systems, segregation of spoils materials, minimizing surface disturbance, re-evaluating backfill requirements, pit closure, topsoil redistribution, soil treatments, seeding and weed control.

**Interim Reclamation**

Interim reclamation includes pit closure, re-contouring (where possible), soil bed preparation, topsoil placement, seeding, and/or weed control.

Interim re-contouring involves bringing all construction material from cuts and fills back onto the well pad and site and reestablishing the natural contours where desirable and practical. Fill and stockpiled spoils no longer necessary to the operation will be spread on the cut slopes and covered with stockpiled topsoil. All

stockpiled top soils will be used for interim reclamation where practical to maintain soil viability. Where possible, the land surface will be left “rough” after re-contouring to ensure that the maximum surface area will be available to support the reestablishment of vegetative cover.

A reserve pit, upon being allowed to dry, will be backfilled and compacted with cover materials that are void of any topsoil, vegetation, large stones, rocks or foreign objects. Soils that are moisture laden, saturated, or partially/completely frozen will not be used for backfill or cover. The pit area will be mounded to allow for settling and to promote positive surface drainage away from the pit.

### **Final Reclamation**

Final reclamation will be performed for newly drilled unproductive wells and/or at the end of the life of a productive well. As soon as practical after the conclusion of drilling and testing operations, unproductive drill holes will be plugged and abandoned (P&A). Site and road reclamation will commence following plugging. In no case will reclamation at non-producing locations be initiated later than six (6) months from the date a well is plugged. A joint inspection of the disturbed area to be reclaimed may be requested by APC/KMG. The primary purpose of this inspection will be to review the existing conditions, or agree upon a revised final reclamation and abandonment plan. A Notice of Intent to Abandon will be filed for final recommendations regarding surface reclamation.

After plugging, all wellhead equipment that is no longer needed will be removed, and the well site will be reclaimed. Final contouring will blend with and follow as closely as practical the natural terrain and contours of the original site and surrounding areas. After re-contouring, final grading will be conducted over the entire surface of the well site and access road. Where practical, the area will be ripped to a depth of 18 to 24 inches on 18 to 24-inch centers and surface materials will be pitted with small depressions to form longitudinal depressions 12 to 18 inches deep perpendicular to the natural flow of water.

All unnecessary surface equipment and structures (e.g. cattle guards) and water control structures (e.g. culverts, drainage pipes) not needed to facilitate successful reclamation will be removed during final reclamation. Roads that will be reclaimed will be ripped to a depth of 18 inches where practical, re-contoured to approximate the original contour of the ground and seeded.

Upon successfully completing reclamation of a P&A location, a Final Abandonment Notice will be submitted to UDOGM.

### **Seeding and Measures Common to Interim and Final Reclamation**

Reclaimed areas may be fenced to exclude grazing and encourage re-vegetation.

On slopes where severe erosion can become a problem and the use of machinery is not practical, seed will be hand broadcast and raked with twice the specified amount of seed. The slope will be stabilized using materials specifically designed to prevent erosion on steep slopes and hold seed in place so vegetation can become permanently established. These materials will include, but are not limited to, erosion control blankets and

bonded fiber matrix at a rate to achieve a minimum of 80 percent soil coverage.

Seeding will occur year-round as conditions allow. Seed mixes appropriate to the native plant community as determined and specified for each project location based on the site specific soils will be used for re-vegetation. The site specific seed mix will be provided by SITLA.

**J. Surface/Mineral Ownership:**

SITLA

675 East 500 South, Suite 500

Salt Lake City, UT 84102

**K. Other Information:**

None

**M. Lessee's or Operators' Representative & Certification:**

Danielle Piernot  
Regulatory Analyst I  
Kerr-McGee Oil & Gas Onshore LP  
PO Box 173779  
Denver, CO 80217-3779  
(720) 929-6156

Tommy Thompson  
General Manager, Drilling  
Kerr-McGee Oil & Gas Onshore LP  
PO Box 173779  
Denver, CO 80217-3779  
(720) 929-6724


Certification: All lease and/or unit operations will be conducted in such a manner that full compliance is made with all applicable laws, regulations, Onshore Oil and Gas Orders, the approved Plan of Operations, and any applicable Notice to Lessees.

The Operator will be fully responsible for the actions of its subcontractors. A complete copy of the approved "Application for Permit to Drill" will be furnished to the field representative(s) to ensure compliance and shall be on location during all construction and drilling operations.

Kerr-McGee Oil & Gas Onshore LP is considered to be the operator of the subject well. Kerr-McGee Oil & Gas Onshore LP agrees to be responsible under terms and conditions of the lease for the operations conducted upon leased lands.

Bond coverage for State lease activities is provided by State Surety Bond 22013542, and for applicable Federal lease activities and pursuant to 43 CFR 3104, by Bureau of Land Management Nationwide Bond WYB000291.

I hereby certify that I, or persons under my supervision, have inspected the proposed drill site and access route, that I am familiar with the conditions that currently exist; that I have full knowledge of the State and Federal laws applicable to this operation; that the statements made in this plan are, to the best of my knowledge, true and correct; and the work associated with the operations proposed herein will be performed in conformity with this APD package and the terms and conditions under which it is approved. I also certify that I, or the company I represent, am responsible for operations conducted under this application. These statements are subject to the provisions of 18 U.S.C. 1001 for the filing of false statements.

  
Danielle Piernot

March 11, 2011  
Date



Kerr-McGee Oil & Gas Onshore LP  
PO Box 173779  
DENVER, CO 80217-3779

January 17, 2011

Ms. Diana Mason  
Division of Oil, Gas and Mining  
P.O. Box 145801  
Salt Lake City, UT 84114-6100

Re: Directional Drilling R649-3-11  
NBU 1021-29O1CS  
T10S-R21E  
Section 29: NESE (Surf), SWSE (Bottom)  
Surface: 418' FEL, 1984' FSL  
Bottom Hole: 1849' FEL, 837' FSL  
Uintah County, Utah

Dear Ms. Mason:

Pursuant to the filing of Kerr-McGee Oil & Gas Onshore LP's (Kerr-McGee) Application for Permit to Drill regarding the above referenced well, we are hereby submitting this letter in accordance with Oil & Gas Conservation Rule R649-3-11 pertaining to Directional Drilling.

- Kerr-McGee's NBU 1021-29O1CS is located within the Natural Buttes Unit area.
- Kerr-McGee is permitting this well as a directional well in order to minimize surface disturbance. Locating the well at the surface location and directionally drilling from this location, Kerr-McGee will be able to utilize the existing road and pipelines in the area.
- Furthermore, Kerr-McGee certifies that it is the sole working interest owner within 460 feet of the entire directional well bore.

Therefore, based on the above stated information, Kerr-McGee Oil & Gas Onshore LP requests the permit be granted pursuant to R649-3-11.

Sincerely,

KERR-MCGEE OIL & GAS ONSHORE LP

A handwritten signature in blue ink, appearing to read 'R. Spencer'.

Robert Spencer  
Landman II

**RECEIVED: May. 31, 2011**



Kerr-McGee Oil & Gas Onshore LP  
1999 Broadway, Suite 3700  
Denver, CO 80205

January 24, 2011

Mrs. Diana Mason  
Division of Oil, Gas and Mining  
P.O. Box 145801  
Salt Lake City, UT 84114-6100

RE: NBU 1021-29O1CS  
T10S-R21E  
Section 29: NESE  
Surface: 1984' FSL, 418' FEL  
Bottom Hole: 837' FSL, 1849' FEL  
Uintah County, Utah

Dear Mrs. Mason:

Kerr-McGee Oil & Gas Onshore LP has submitted a permit to drill the captioned well to test the Wasatch and Mesaverde formations. The well is located within the area covered by Order No. 173-14 and is within an exception location area. The surface location of this well is less than 460' from the unit boundary due to a limited amount of topographically acceptable surface locations. Kerr-McGee owns 100% of the leasehold in the offset lands and has no objection to the exception location.

Kerr-McGee requests your approval of this exception location. If you have any questions or require any additional information, please do not hesitate to call me at 720-929-6351.

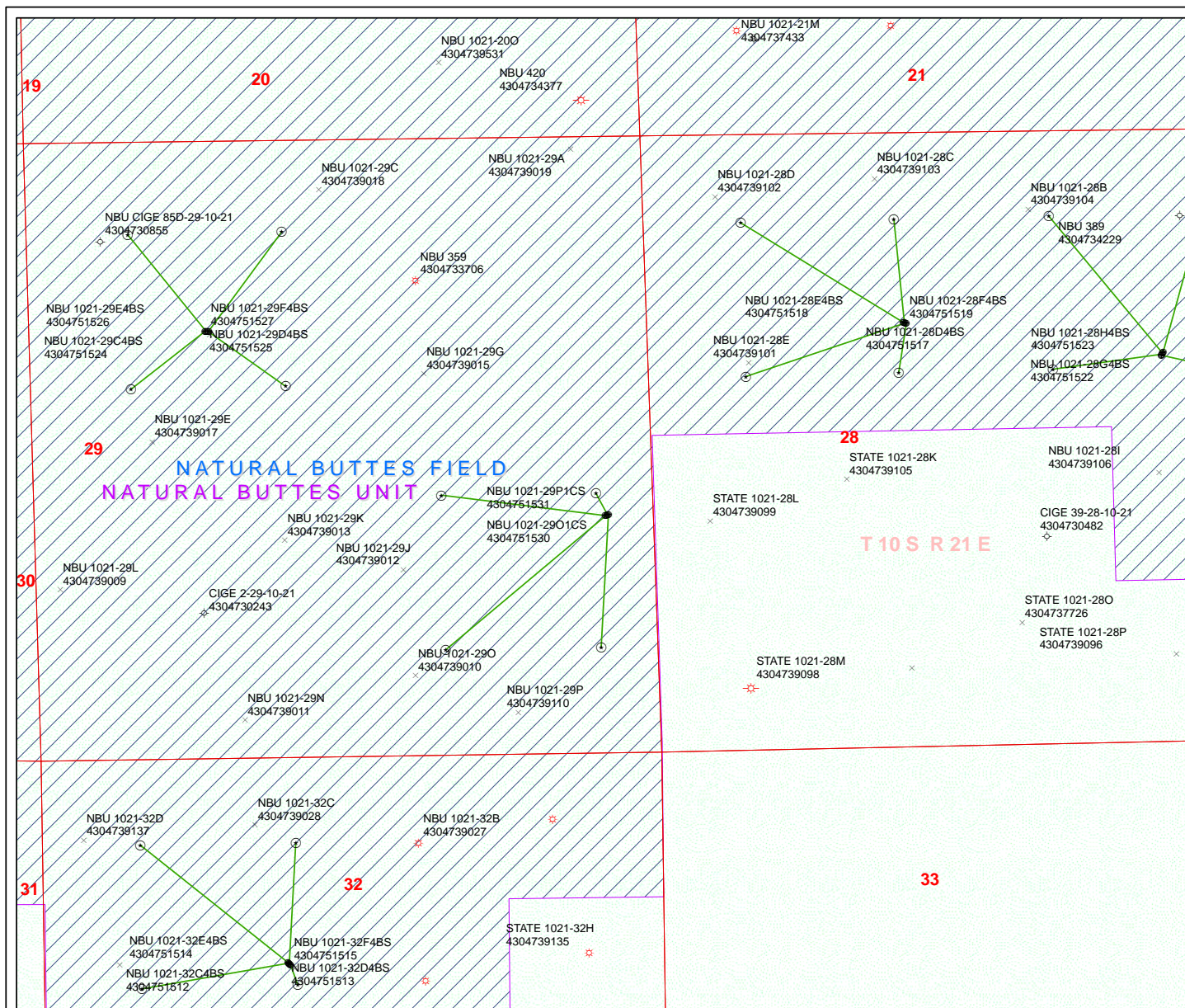
Sincerely,

A handwritten signature in blue ink, appearing to read 'R. T. Spencer'.

Robert T. Spencer  
Landman

**RECEIVED: May. 31, 2011**

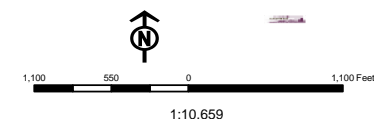




**API Number: 4304751530**  
**Well Name: NBU 1021-29O1CS**  
**Township T10. Range R21. Section 29**  
**Meridian: SLBM**  
**Operator: KERR-MCGEE OIL & GAS ONSHORE, L.P.**

Map Prepared:  
 Map Produced by Diana Mason

Units	Wells Query
STATUS	APD - Approved Permit
ACTIVE	DRL - Spudded (Drilling Commenced)
EXPLORATORY	GIW - Gas Injection
GAS STORAGE	GS - Gas Storage
NF PP OIL	LA - Location Abandoned
NF SECONDARY	LOC - New Location
PI OIL	OPS - Operation Suspended
PP GAS	PA - Plugged Abandoned
PP GEOTHERMAL	PGW - Producing Gas Well
PP OIL	POW - Producing Oil Well
SECONDARY	RET - Returned APD
TERMINATED	SGW - Shut-in Gas Well
	SOW - Shut-in Oil Well
	TA - Temp. Abandoned
	TW - Test Well
	WDW - Water Disposal
	WWI - Water Injection Well
	WSW - Water Supply Well
Fields	
STATUS	
ABANDONED	
ACTIVE	
COMBINED	
INACTIVE	
STORAGE	
TERMINATED	
Sections	
Township	



# United States Department of the Interior

## BUREAU OF LAND MANAGEMENT

Utah State Office

P.O. Box 45155

Salt Lake City, Utah 84145-0155

IN REPLY REFER TO:

3160

(UT-922)

March 16, 2011

Memorandum

To: Assistant District Manager Minerals, Vernal District

From: Michael Coulthard, Petroleum Engineer

Subject: 2011 Plan of Development Natural Buttes Unit  
Uintah County, Utah.

Pursuant to email between Diana Whitney, Division of Oil, Gas and Mining, and Mickey Coulthard, Utah State Office, Bureau of Land Management, the following wells are planned for calendar year 2011 within the Natural Buttes Unit, Uintah County, Utah.

API #	WELL NAME	LOCATION
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(Proposed PZ WASATCH-MESA VERDE)

### NBU 1021-30P PAD

43-047-51510	NBU 1021-30O4BS	Sec 30 T10S R21E 1179 FSL 0971 FEL
	BHL	Sec 30 T10S R21E 0499 FSL 1831 FEL

43-047-51511	NBU 1021-30P1CS	Sec 30 T10S R21E 1189 FSL 0972 FEL
	BHL	Sec 30 T10S R21E 0837 FSL 0499 FEL

### NBU 1021-32F PAD

43-047-51512	NBU 1021-32C4BS	Sec 32 T10S R21E 1872 FNL 2121 FWL
	BHL	Sec 32 T10S R21E 0825 FNL 2188 FWL

43-047-51513	NBU 1021-32D4BS	Sec 32 T10S R21E 1860 FNL 2105 FWL
	BHL	Sec 32 T10S R21E 0825 FNL 0842 FWL

43-047-51514	NBU 1021-32E4BS	Sec 32 T10S R21E 1866 FNL 2113 FWL
	BHL	Sec 32 T10S R21E 2072 FNL 0841 FWL

43-047-51515	NBU 1021-32F4BS	Sec 32 T10S R21E 1878 FNL 2129 FWL
	BHL	Sec 32 T10S R21E 2053 FNL 2191 FWL

### NBU 1021-28F PAD

43-047-51516	NBU 1021-28C4BS	Sec 28 T10S R21E 1730 FNL 2213 FWL
	BHL	Sec 28 T10S R21E 0831 FNL 2151 FWL

RECEIVED: May. 31, 2011

API #	WELL NAME	LOCATION
(Proposed PZ WASATCH-MESA VERDE)		
43-047-51517	NBU 1021-28D4BS	Sec 28 T10S R21E 1726 FNL 2204 FWL
	BHL	Sec 28 T10S R21E 0834 FNL 0827 FWL
43-047-51518	NBU 1021-28E4BS	Sec 28 T10S R21E 1733 FNL 2222 FWL
	BHL	Sec 28 T10S R21E 2168 FNL 0828 FWL
43-047-51519	NBU 1021-28F4BS	Sec 28 T10S R21E 1736 FNL 2232 FWL
	BHL	Sec 28 T10S R21E 2163 FNL 2153 FWL
<b>NBU 1021-28H PAD</b>		
43-047-51520	NBU 1021-28A4BS	Sec 28 T10S R21E 2029 FNL 0866 FEL
	BHL	Sec 28 T10S R21E 0828 FNL 0496 FEL
43-047-51521	NBU 1021-28B4BS	Sec 28 T10S R21E 2038 FNL 0871 FEL
	BHL	Sec 28 T10S R21E 0830 FNL 1820 FEL
43-047-51522	NBU 1021-28G4BS	Sec 28 T10S R21E 2047 FNL 0876 FEL
	BHL	Sec 28 T10S R21E 2158 FNL 1822 FEL
43-047-51523	NBU 1021-28H4BS	Sec 28 T10S R21E 2056 FNL 0880 FEL
	BHL	Sec 28 T10S R21E 2153 FNL 0497 FEL
<b>NBU 1021-29F PAD</b>		
43-047-51524	NBU 1021-29C4BS	Sec 29 T10S R21E 1685 FNL 1518 FWL
	BHL	Sec 29 T10S R21E 0837 FNL 2171 FWL
43-047-51525	NBU 1021-29D4BS	Sec 29 T10S R21E 1687 FNL 1498 FWL
	BHL	Sec 29 T10S R21E 0838 FNL 0835 FWL
43-047-51526	NBU 1021-29E4BS	Sec 29 T10S R21E 1689 FNL 1488 FWL
	BHL	Sec 29 T10S R21E 2179 FNL 0837 FWL
43-047-51527	NBU 1021-29F4BS	Sec 29 T10S R21E 1686 FNL 1508 FWL
	BHL	Sec 29 T10S R21E 2177 FNL 2176 FWL
<b>NBU 1021-29I</b>		
43-047-51528	NBU 1021-29I1CS	Sec 29 T10S R21E 1988 FSL 0409 FEL
	BHL	Sec 29 T10S R21E 2173 FSL 0503 FEL
43-047-51529	NBU 1021-29J1CS	Sec 29 T10S R21E 1980 FSL 0427 FEL
	BHL	Sec 29 T10S R21E 2175 FSL 1844 FEL
43-047-51530	NBU 1021-29O1CS	Sec 29 T10S R21E 1984 FSL 0418 FEL
	BHL	Sec 29 T10S R21E 0837 FSL 1849 FEL
43-047-51531	NBU 1021-29P1CS	Sec 29 T10S R21E 1993 FSL 0400 FEL
	BHL	Sec 29 T10S R21E 0836 FSL 0504 FEL

API #	WELL NAME	LOCATION
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(Proposed PZ WASATCH-MESA VERDE)

**NBU 1021-30F**

43-047-51532	NBU 1021-30C4BS	Sec 30 T10S R21E 1954 FNL 1948 FWL
	BHL	Sec 30 T10S R21E 0826 FNL 2156 FWL

43-047-51533	NBU 1021-30D4BS	Sec 30 T10S R21E 1964 FNL 1950 FWL
	BHL	Sec 30 T10S R21E 0821 FNL 0829 FWL

43-047-51534	NBU 1021-30E4BS	Sec 30 T10S R21E 1973 FNL 1951 FWL
	BHL	Sec 30 T10S R21E 2136 FNL 0830 FWL

43-047-51535	NBU 1021-30F4BS	Sec 30 T10S R21E 1983 FNL 1953 FWL
	BHL	Sec 30 T10S R21E 2150 FNL 2159 FWL

**1021-30P PAD**

43-047-51536	NBU 1021-30H4BS	Sec 30 T10S R21E 1199 FSL 0972 FEL
	BHL	Sec 30 T10S R21E 2175 FNL 0498 FEL

43-047-51537	NBU 1021-30J1CS	Sec 30 T10S R21E 1209 FSL 0973 FEL
	BHL	Sec 30 T10S R21E 2162 FSL 1828 FEL

This office has no objection to permitting the wells at this time.

**Michael L. Coulthard** Digitally signed by Michael L. Coulthard  
DN: cn=Michael L. Coulthard, o=Bureau of Land Management, ou=Branch  
of Minerals, email=Michael\_Coulthard@blm.gov, c=US  
Date: 2011.03.16 12:35:54 -06'00'

bcc: File - Natural Buttes Unit  
Division of Oil Gas and Mining  
Central Files  
Agr. Sec. Chron  
Fluid Chron

MCoulthard:mc:3-16-11

**From:** Jim Davis  
**To:** Bonner, Ed; Garrison, LaVonne; Hill, Brad; Mason, Diana  
**CC:** Jacobsen, Julie; Lytle, Andy; Piernot, Danielle  
**Date:** 4/28/2011 2:24 PM  
**Subject:** Kerr McGee APD approvals (28)

The following APDs have been approved by SITLA including arch clearance. Paleo clearance is granted with the stipulations noted below.

These wells are approved with out stipulation.

4304751536 NBU 1021-30H4BS  
4304751537 NBU 1021-30J1CS  
4304751510 NBU 1021-30O4BS  
4304751511 NBU 1021-30P1CS  
4304751512 NBU 1021-32C4BS  
4304751513 NBU 1021-32D4BS  
4304751514 NBU 1021-32E4BS  
4304751515 NBU 1021-32F4BS

A permitted paleontologist needs to be on-site to observe construction of these wells/ pads.

4304751516 NBU 1021-28C4BS  
4304751517 NBU 1021-28D4BS  
4304751518 NBU 1021-28E4BS  
4304751519 NBU 1021-28F4BS  
4304751520 NBU 1021-28A4BS  
4304751521 NBU 1021-28B4BS  
4304751522 NBU 1021-28G4BS  
4304751523 NBU 1021-28H4BS  
4304751524 NBU 1021-29C4BS  
4304751525 NBU 1021-29D4BS  
4304751526 NBU 1021-29E4BS  
4304751527 NBU 1021-29F4BS  
4304751528 NBU 1021-29I1CS  
4304751529 NBU 1021-29J1CS  
4304751530 NBU 1021-29O1CS  
4304751531 NBU 1021-29P1CS  
4304751532 NBU 1021-30C4BS  
4304751533 NBU 1021-30D4BS  
4304751534 NBU 1021-30E4BS  
4304751535 NBU 1021-30F4BS

-Jim Davis



Well Name	KERR-MCGEE OIL & GAS ONSHORE, L.P. NBU 1021-2901CS			
String	Surf	Prod		
Casing Size(in)	8.625	4.500		
Setting Depth (TVD)	1937	9254		
Previous Shoe Setting Depth (TVD)	40	1937		
Max Mud Weight (ppg)	8.4	12.5		
BOPE Proposed (psi)	500	5000		
Casing Internal Yield (psi)	3390	7780		
Operators Max Anticipated Pressure (psi)	5922	12.3		

Calculations	Surf String	8.625	"	
Max BHP (psi)	.052*Setting Depth*MW=	846		
			BOPE Adequate For Drilling And Setting Casing at Depth?	
MASP (Gas) (psi)	Max BHP-(0.12*Setting Depth)=	614	NO	air drill
MASP (Gas/Mud) (psi)	Max BHP-(0.22*Setting Depth)=	420	YES	oK
			*Can Full Expected Pressure Be Held At Previous Shoe?	
Pressure At Previous Shoe	Max BHP-.22*(Setting Depth - Previous Shoe Depth)=	429	NO	Reasonable depth in area
Required Casing/BOPE Test Pressure=		1937	psi	
*Max Pressure Allowed @ Previous Casing Shoe=		40	psi *Assumes 1psi/ft frac gradient	

Calculations	Prod String	4.500	"	
Max BHP (psi)	.052*Setting Depth*MW=	6015		
			BOPE Adequate For Drilling And Setting Casing at Depth?	
MASP (Gas) (psi)	Max BHP-(0.12*Setting Depth)=	4905	YES	
MASP (Gas/Mud) (psi)	Max BHP-(0.22*Setting Depth)=	3979	YES	OK
			*Can Full Expected Pressure Be Held At Previous Shoe?	
Pressure At Previous Shoe	Max BHP-.22*(Setting Depth - Previous Shoe Depth)=	4405	NO	Reasonable
Required Casing/BOPE Test Pressure=		5000	psi	
*Max Pressure Allowed @ Previous Casing Shoe=		1937	psi *Assumes 1psi/ft frac gradient	

Calculations	String		"	
Max BHP (psi)	.052*Setting Depth*MW=			
			BOPE Adequate For Drilling And Setting Casing at Depth?	
MASP (Gas) (psi)	Max BHP-(0.12*Setting Depth)=		NO	
MASP (Gas/Mud) (psi)	Max BHP-(0.22*Setting Depth)=		NO	
			*Can Full Expected Pressure Be Held At Previous Shoe?	
Pressure At Previous Shoe	Max BHP-.22*(Setting Depth - Previous Shoe Depth)=		NO	
Required Casing/BOPE Test Pressure=			psi	
*Max Pressure Allowed @ Previous Casing Shoe=			psi *Assumes 1psi/ft frac gradient	

Calculations	String		"	
Max BHP (psi)	.052*Setting Depth*MW=			
			BOPE Adequate For Drilling And Setting Casing at Depth?	
MASP (Gas) (psi)	Max BHP-(0.12*Setting Depth)=		NO	
MASP (Gas/Mud) (psi)	Max BHP-(0.22*Setting Depth)=		NO	
			*Can Full Expected Pressure Be Held At Previous Shoe?	
Pressure At Previous Shoe	Max BHP-.22*(Setting Depth - Previous Shoe Depth)=		NO	
Required Casing/BOPE Test Pressure=			psi	

API Well Number: 43047515300000

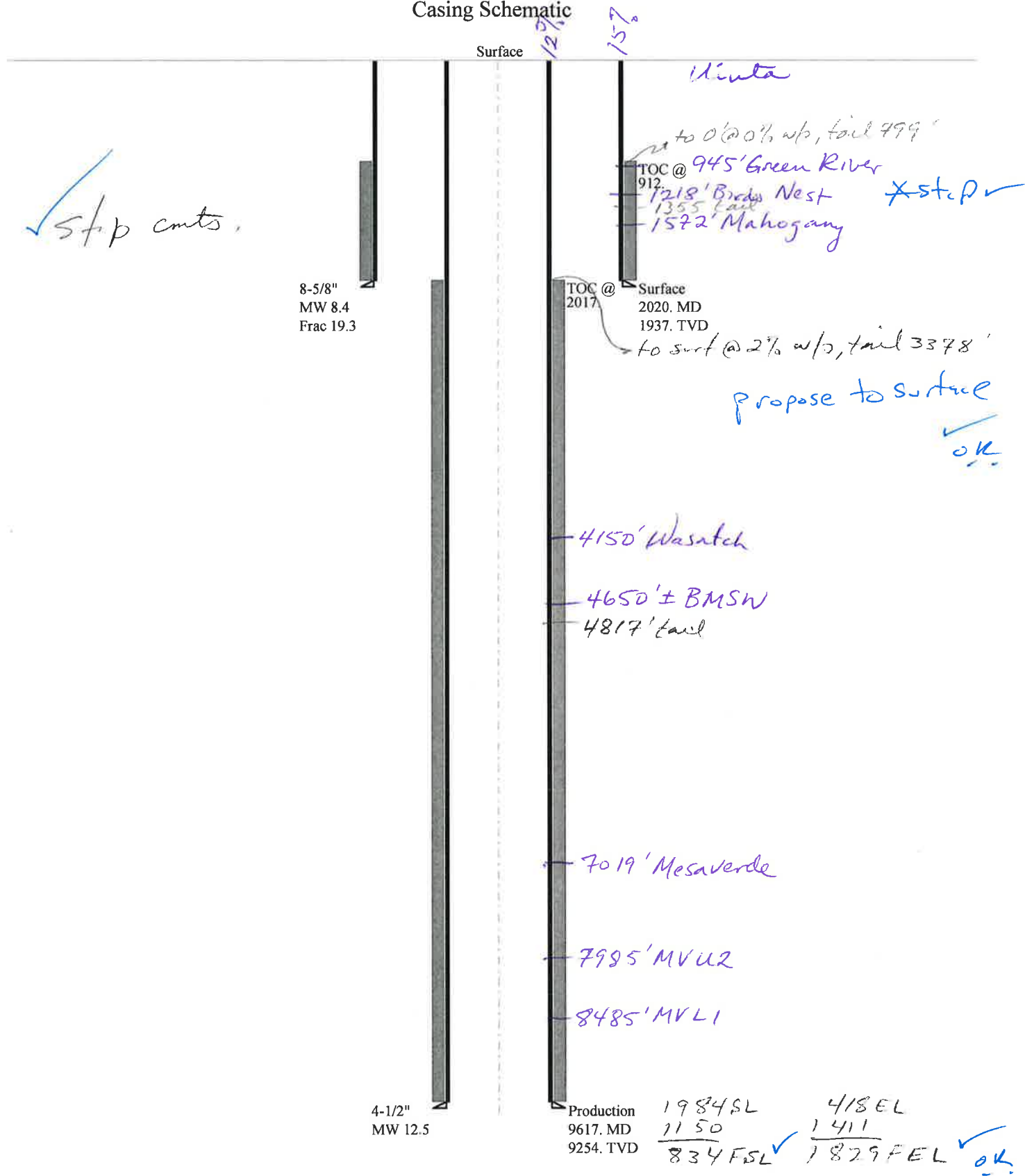
\*Max Pressure Allowed @ Previous Casing Shoe=

psi \*Assumes 1psi/ft frac gradient



# 43047515300000 NBU 1021-2901CS

## Casing Schematic



SW SE Sec 29-10S-21E

Well name:	<b>43047515300000 NBU 1021-2901CS</b>		
Operator:	<b>KERR-MCGEE OIL &amp; GAS ONSHORE, L.P.</b>		
String type:	Surface	Project ID:	43-047-51530
Location:	UINTAH	COUNTY	

**Design parameters:****Collapse**

Mud weight: 8.400 ppg  
Design is based on evacuated pipe.

**Minimum design factors:****Collapse:**

Design factor 1.125

**Burst:**

Design factor 1.00

**Environment:**

H2S considered? No  
Surface temperature: 74 °F  
Bottom hole temperature: 101 °F  
Temperature gradient: 1.40 °F/100ft  
Minimum section length: 100 ft

Cement top: 912 ft

**Burst**

Max anticipated surface pressure: 1,778 psi  
Internal gradient: 0.120 psi/ft  
Calculated BHP 2,010 psi

No backup mud specified.

**Tension:**

8 Round STC: 1.80 (J)  
8 Round LTC: 1.70 (J)  
Buttress: 1.60 (J)  
Premium: 1.50 (J)  
Body yield: 1.50 (B)

Tension is based on air weight.  
Neutral point: 1,755 ft

**Directional Info - Build & Drop**

Kick-off point 300 ft  
Departure at shoe: 467 ft  
Maximum dogleg: 2 °/100ft  
Inclination at shoe: 25 °

**Re subsequent strings:**

Next setting depth: 8,954 ft  
Next mud weight: 12.500 ppg  
Next setting BHP: 5,814 psi  
Fracture mud wt: 19.250 ppg  
Fracture depth: 2,020 ft  
Injection pressure: 2,020 psi

Run Seq	Segment Length (ft)	Size (in)	Nominal Weight (lbs/ft)	Grade	End Finish	True Vert Depth (ft)	Measured Depth (ft)	Drift Diameter (in)	Est. Cost (\$)
1	2020	8.625	28.00	I-55	LT&C	1937	2020	7.892	79992
Run Seq	Collapse Load (psi)	Collapse Strength (psi)	Collapse Design Factor	Burst Load (psi)	Burst Strength (psi)	Burst Design Factor	Tension Load (kips)	Tension Strength (kips)	Tension Design Factor
1	845	1880	2.225	2010	3390	1.69	54.2	348	6.42 J

Prepared by: Helen Sadik-Macdonald  
Div of Oil, Gas & Mining

Phone: 801-538-5357  
FAX: 801-359-3940

Date: May 24, 2011  
Salt Lake City, Utah

**Remarks:**

Collapse is based on a vertical depth of 1937 ft, a mud weight of 8.4 ppg. The casing is considered to be evacuated for collapse purposes. Collapse strength is based on the Westcott, Dunlop & Kemler method of biaxial correction for tension.

Burst strength is not adjusted for tension.

Collapse strength is (biaxially) derated for doglegs in directional wells by multiplying the tensile stress by the cross section area to calculate a

*Engineering responsibility for use of this design will be that of the purchaser.*

**RECEIVED: May. 31, 2011**

Well name:	<b>43047515300000 NBU 1021-2901CS</b>		
Operator:	<b>KERR-MCGEE OIL &amp; GAS ONSHORE, L.P.</b>		
String type:	Production	Project ID:	43-047-51530
Location:	UINTAH COUNTY		

**Design parameters:****Collapse**

Mud weight: 12.500 ppg  
Internal fluid density: 1.000 ppg

**Minimum design factors:****Collapse:**

Design factor 1.125

**Burst:**

Design factor 1.00

**Environment:**

H2S considered? No  
Surface temperature: 74 °F  
Bottom hole temperature: 204 °F  
Temperature gradient: 1.40 °F/100ft  
Minimum section length: 100 ft

Cement top: 2,017 ft

**Burst**

Max anticipated surface pressure: 3,973 psi  
Internal gradient: 0.220 psi/ft  
Calculated BHP 6,009 psi

No backup mud specified.

**Tension:**

8 Round STC: 1.80 (J)  
8 Round LTC: 1.80 (J)  
Buttress: 1.60 (J)  
Premium: 1.50 (J)  
Body yield: 1.60 (B)

**Directional Info - Build & Drop**

Kick-off point 300 ft  
Departure at shoe: 1821 ft  
Maximum dogleg: 2 °/100ft  
Inclination at shoe: 0 °

Tension is based on air weight.  
Neutral point: 7,888 ft

Run Seq	Segment Length (ft)	Size (in)	Nominal Weight (lbs/ft)	Grade	End Finish	True Vert Depth (ft)	Measured Depth (ft)	Drift Diameter (in)	Est. Cost (\$)
1	9617	4.5	11.60	I-80	LT&C	9254	9617	3.875	126944

Run Seq	Collapse Load (psi)	Collapse Strength (psi)	Collapse Design Factor	Burst Load (psi)	Burst Strength (psi)	Burst Design Factor	Tension Load (kips)	Tension Strength (kips)	Tension Design Factor
1	5528	6360	1.150	6009	7780	1.29	107.3	212	1.97 J

Prepared by: Helen Sadik-Macdonald  
Div of Oil, Gas & Mining

Phone: 801 538-5357  
FAX: 801-359-3940

Date: May 24, 2011  
Salt Lake City, Utah

**Remarks:**

Collapse is based on a vertical depth of 9254 ft, a mud weight of 12.5 ppg. An internal gradient of .052 psi/ft was used for collapse from TD. Collapse strength is based on the Westcott, Dunlop & Kemler method of biaxial correction for tension.

Burst strength is not adjusted for tension.

Collapse strength is (biaxially) derated for doglegs in directional wells by multiplying the tensile stress by the cross section area to calculate a

*Engineering responsibility for use of this design will be that of the purchaser.*

**RECEIVED: May. 31, 2011**

**ON-SITE PREDRILL EVALUATION****Utah Division of Oil, Gas and Mining**

**Operator** KERR-MCGEE OIL & GAS ONSHORE, L.P.  
**Well Name** NBU 1021-29O1CS  
**API Number** 43047515300000 **APD No** 3546 **Field/Unit** NATURAL BUTTES  
**Location: 1/4,1/4** NESE **Sec** 29 **Tw** 10.0S **Rng** 21.0E 1984 FSL 418 FEL  
**GPS Coord (UTM)** **Surface Owner**

**Participants**

See other comments:

**Regional/Local Setting & Topography**

The general area is within the Natural Buttes Unit in the middle portion of the Cottonwood Wash Drainage of Uintah County. The area is characterized by rolling hills and benches which are frequently intersected by somewhat gentle draws. The draws are occasionally rimmed with steep side hills which have exposed sand stone bedrock cliffs along the rims. Cottonwood Wash is an ephemeral drainage, which drains northerly approximately 6 miles to the White River. No seeps, springs or streams exist in the area. An occasional pond, constructed to store runoff for cattle and livestock exists.

This location is approximately 18.5 road miles southeast of Ouray, Utah and 49.2 road miles south of Vernal, Utah. It is accessed by the Seep Ridge Road then by Uintah County and existing or planned oil field development roads to within 275 feet of the proposed site. New construction will be required from this point.

The proposed NBU 1021-29I pad will contain 4 gas wells all to be directionally drilled. They are the NBU 1021-29PICS, NBU 1021-29I1CS, NBU 1021-20I1CS and NBU 1021-2J1CS. The location is in rolling topography on top of a rounded ridge which extends to the northwest. The south side is somewhat defined and limited by a draw which will be slightly re-channeled to the south and drained by a culvert under the access road. This drainage continues to the northwest into a significant draw. To the northeast is a deep narrow rocky draw which precludes any movement of the pad in this direction. It continues to the northwest joining the other draw. An interior swale near corner 1 will be filled during pad construction. Maximum cut for the pad is 9.3 feet at Corner 4 with a maximum fill is 7.7 feet at Corner 1. Cottonwood Wash is about 1/8 mile to the west.

The selected location appears to be a suitable site for drilling and operating a well, and is the best site in the immediate area

Both the surface and minerals for this location are owned by SITLA. Jim Davis of SITLA attended the site visit. He had no concerns regarding the proposal except as noted above. A seed mix to be used in reclamation has previously been provided to Kerr McGee by SITLA for this zone. Ben Williams and Alex Hansen of the UDWR also attended. The area is classified as yearlong crucial habitat for antelope but no restrictions were recommended. No other wildlife species are expected to be significantly affected.

**Surface Use Plan****Current Surface Use**

Grazing  
 Recreational  
 Wildlife Habitat

<b>New Road Miles</b>	<b>Well Pad</b>	<b>Src Const Material</b>	<b>Surface Formation</b>
0.025	<b>Width</b> 353 <b>Length</b> 455	Onsite	UNTA

Ancillary Facilities N

**Waste Management Plan Adequate?****Environmental Parameters**

Affected Floodplains and/or Wetlands N

**Flora / Fauna**

Vegetation is a desert shrub type. Vegetation included shadscale, horsebrush, broom snakeweed, sagebrush, curly mesquite grass, bud sage, mat saltbrush, squirrel tail, cheat grass, prickly pear, halogeton and spring annuals.

Antelope, cattle, rabbits, coyotes, and small mammals, birds and raptors.

**Soil Type and Characteristics**

Moderately deep to shallow sandy loam with some bedrock outcrops.

**Erosion Issues Y**

The south side is somewhat defined and limited by a draw which will be slightly re-channeled to the south and drained by a culvert under the access road.

**Sedimentation Issues N****Site Stability Issues N****Drainage Diversion Required? Y**

The south side is somewhat defined and limited by a draw which will be slightly re-channeled to the south and drained by a culvert under the access road.

**Berm Required? N****Erosion Sedimentation Control Required? Y**

The south side is somewhat defined and limited by a draw which will be slightly re-channeled to the south and drained by a culvert under the access road.

Paleo Survey Run? Y    Paleo Potential Observed? N    Cultural Survey Run? Y    Cultural Resources?

**Reserve Pit**

Site-Specific Factors		Site Ranking
Distance to Groundwater (feet)	100 to 200	5
Distance to Surface Water (feet)	>1000	0
Dist. Nearest Municipal Well (ft)	>5280	0
Distance to Other Wells (feet)		20
Native Soil Type	Mod permeability	10
Fluid Type	Fresh Water	5
Drill Cuttings	Normal Rock	0
Annual Precipitation (inches)		0
Affected Populations		
Presence Nearby Utility Conduits	Not Present	0

**Characteristics / Requirements**

The reserve pit is planned in an area of cut in the southeast corner of the location. Dimensions are 120' x 260' x 12' deep with 2' of freeboard and a 15' outer bench. Kerr McGee proposed to line the pit with a 30-mil liner and 2 layers of felt.

**Closed Loop Mud Required?** N **Liner Required?** Y **Liner Thickness** 30 **Pit Underlayment Required?** Y

**Other Observations / Comments**

Floyd Bartlett (DOGM), Jim Davis (SITLA), Clay Einerson, Charles Chase, Roger Perry, Duane Holmes, Kenny Gathings, Andy Lytle and Shelia Wopsock (Kerr McGee), Alex Hansen and Ben Williams (UDWR), Mitch Batty, John Slaugh, (Timberline Engineering and Land Surveying).

Floyd Bartlett

**Evaluator**

3/30/2011

**Date / Time**

# Application for Permit to Drill

## Statement of Basis

5/31/2011

Utah Division of Oil, Gas and Mining

Page 1

<b>APD No</b>	<b>API WellNo</b>	<b>Status</b>	<b>Well Type</b>	<b>Surf Owner</b>	<b>CBM</b>
3546	43047515300000	LOCKED	GW	S	No
<b>Operator</b>	KERR-MCGEE OIL & GAS ONSHORE, L.P.		<b>Surface Owner-APD</b>		
<b>Well Name</b>	NBU 1021-29O1CS		<b>Unit</b>	NATURAL BUTTES	
<b>Field</b>	NATURAL BUTTES		<b>Type of Work</b>	DRILL	
<b>Location</b>	NESE 29 10S 21E S 1984 FSL 418 FEL GPS Coord (UTM) 622490E 4419294N				

### Geologic Statement of Basis

Kerr McGee proposes to set 2,020' of surface casing at this location. The depth to the base of the moderately saline water at this location is estimated to be at a depth of 4,650'. A search of Division of Water Rights records shows no water wells within a 10,000 foot radius of the center of Section 29. The surface formation at this site is the Uinta Formation. The Uinta Formation is made up of interbedded shales and sandstones. The sandstones are mostly lenticular and discontinuous and should not be a significant source of useable ground water. Production casing cement should be brought up above the base of the moderately saline ground water to isolate it from fresher waters uphole.

Brad Hill  
APD Evaluator

4/25/2011  
Date / Time

### Surface Statement of Basis

The general area is within the Natural Buttes Unit in the middle portion of the Cottonwood Wash Drainage of Uintah County. The area is characterized by rolling hills and benches which are frequently intersected by somewhat gentle draws. The draws are occasionally rimmed with steep side hills which have exposed sand stone bedrock cliffs along the rims. Cottonwood Wash is an ephemeral drainage, which drains northerly approximately 6 miles to the White River. No seeps, springs or streams exist in the area. An occasional pond, constructed to store runoff for cattle and livestock exists.

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The proposed NBU 1021-29I pad will contain 4 gas wells all to be directionally drilled. They are the NBU 1021-29PICS, NBU 1021-29I1CS, NBU 1021-20I1CS and NBU 1021-2J1CS. The location is in rolling topography on top of a rounded ridge which extends to the northwest. The south side is somewhat defined and limited by a draw which will be slightly re-channeled to the south and drained by a culvert under the access road. This drainage continues to the northwest into a significant draw. To the northeast is a deep narrow rocky draw which precludes any movement of the pad in this direction. It continues to the northwest joining the other draw. An interior swale near corner 1 will be filled during pad construction. Maximum cut for the pad is 9.3 feet at Corner 4 with a maximum fill is 7.7 feet at Corner 1. Cottonwood Wash is about 1/8 mile to the west.

The selected location appears to be a suitable site for drilling and operating a well, and is the best site in the immediate area

Both the surface and minerals for this location are owned by SITLA. Jim Davis of SITLA attended the site visit. He had no concerns regarding the proposal except as noted above. A seed mix to be used in reclamation has previously been provided to Kerr McGee by SITLA for this zone. Ben Williams and Alex Hansen of the UDWR also attended. The area is classified as yearlong crucial habitat for antelope but no restrictions were recommended. No other wildlife species are expected to be significantly affected.



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## Application for Permit to Drill Statement of Basis

5/31/2011

**Utah Division of Oil, Gas and Mining**

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Page 2

Floyd Bartlett  
**Onsite Evaluator**

3/30/2011  
**Date / Time**

**Conditions of Approval / Application for Permit to Drill**

<b>Category</b>	<b>Condition</b>
Pits	A synthetic liner with a minimum thickness of 30 mils with a double felt subliner shall be properly installed and maintained in the reserve pit.
Surface	Drainages adjacent to the proposed pad shall be diverted around the location.
Surface	The reserve pit shall be fenced upon completion of drilling operations.
Surface	The well site shall be bermed to prevent fluids from leaving the pad.

## WORKSHEET APPLICATION FOR PERMIT TO DRILL

**APD RECEIVED:** 3/11/2011**API NO. ASSIGNED:** 43047515300000**WELL NAME:** NBU 1021-2901CS**OPERATOR:** KERR-MCGEE OIL & GAS ONSHORE, L.P. (N2995)**PHONE NUMBER:** 720 929-6156**CONTACT:** Danielle Piernot**PROPOSED LOCATION:** NESE 29 100S 210E**Permit Tech Review:** ☒**SURFACE:** 1984 FSL 0418 FEL**Engineering Review:** ☒**BOTTOM:** 0837 FSL 1849 FEL**Geology Review:** ☒**COUNTY:** UINTAH**LATITUDE:** 39.91678**LONGITUDE:** -109.56681**UTM SURF EASTINGS:** 622490.00**NORTHINGS:** 4419294.00**FIELD NAME:** NATURAL BUTTES**LEASE TYPE:** 3 - State**LEASE NUMBER:** ML 21330**PROPOSED PRODUCING FORMATION(S):** WASATCH-MESA VERDE**SURFACE OWNER:** 3 - State**COALBED METHANE:** NO**RECEIVED AND/OR REVIEWED:**

- ☒ **PLAT**
- ☒ **Bond:** STATE/FEE - 22013542
- ☐ **Potash**
- ☒ **Oil Shale 190-5**
- ☐ **Oil Shale 190-3**
- ☐ **Oil Shale 190-13**
- ☒ **Water Permit:** Permit #43-8496
- ☐ **RDCC Review:**
- ☐ **Fee Surface Agreement**
- ☒ **Intent to Commingle**

**Commingle Approved****LOCATION AND SITING:**

- ☐ **R649-2-3.**
- Unit:** NATURAL BUTTES
- ☐ **R649-3-2. General**
- ☐ **R649-3-3. Exception**
- ☒ **Drilling Unit**
- Board Cause No:** Cause 173-14
- Effective Date:** 12/2/1999
- Siting:** Suspends General Siting
- ☒ **R649-3-11. Directional Drill**

**Comments:** Presite Completed

**Stipulations:**

- 3 - Commingle - ddoucet
- 5 - Statement of Basis - bhill
- 15 - Directional - dmason
- 17 - Oil Shale 190-5(b) - dmason
- 25 - Surface Casing - hmadonald

**RECEIVED:** May. 31, 2011



GARY R. HERBERT  
*Governor*

GREGORY S. BELL  
*Lieutenant Governor*

## State of Utah

DEPARTMENT OF NATURAL RESOURCES

MICHAEL R. STYLER  
*Executive Director*

Division of Oil, Gas and Mining

JOHN R. BAZA  
*Division Director*

### Permit To Drill

\*\*\*\*\*

**Well Name:** NBU 1021-29O1CS

**API Well Number:** 43047515300000

**Lease Number:** ML 21330

**Surface Owner:** STATE

**Approval Date:** 5/31/2011

**Issued to:**

KERR-MCGEE OIL & GAS ONSHORE, L.P., P.O. Box 173779, Denver, CO 80217

**Authority:**

Pursuant to Utah Code Ann. §40-6-1 et seq., and Utah Administrative Code R649-3-1 et seq., the Utah Division of Oil, Gas and Mining issues conditions of approval, and permit to drill the listed well. This permit is issued in accordance with the requirements of Cause 173-14. The expected producing formation or pool is the WASATCH-MESA VERDE Formation(s), completion into any other zones will require filing a Sundry Notice (Form 9). Completion and commingling of more than one pool will require approval in accordance with R649-3-22.

**Duration:**

This approval shall expire one year from the above date unless substantial and continuous operation is underway, or a request for extension is made prior to the expiration date

**Commingling:**

In accordance with Board Cause No. 173-14, commingling of the production from the Wasatch formation and the Mesaverde formation in this well is allowed.

**General:**

Compliance with the requirements of Utah Admin. R. 649-1 et seq., the Oil and Gas Conservation General Rules, and the applicable terms and provisions of the approved Application for permit to drill.

**Conditions of Approval:**

In accordance with Utah Admin. R.649-3-11, Directional Drilling, the operator shall submit a complete angular deviation and directional survey report to the Division within 30 days following completion of the well.

In accordance with the Order in Cause No. 190-5(b) dated October 28, 1982, the operator shall comply with the requirements of Rules R649-3-31 and R649-3-27 pertaining to Designated Oil Shale Areas. Additionally, the operators shall ensure that the surface and or production casing is properly cemented over the entire oil shale section as defined by Rule R649-3-31. The Operator shall report the actual depth the oil shale is encountered to the division.

Compliance with the Conditions of Approval/Application for Permit to Drill outlined in the Statement of Basis (copy attached).

Surface casing shall be cemented to the surface.

**Additional Approvals:**

The operator is required to obtain approval from the Division of Oil, Gas and mining before performing any of the following actions during the drilling of this well:

- Any changes to the approved drilling plan – contact Dustin Doucet
- Significant plug back of the well – contact Dustin Doucet
- Plug and abandonment of the well – contact Dustin Doucet

**Notification Requirements:**

The operator is required to notify the Division of Oil, Gas and Mining of the following actions during drilling of this well:

- Within 24 hours following the spudding of the well – contact Carol Daniels  
OR  
submit an electronic sundry notice (pre-registration required) via the Utah Oil & Gas website at <http://oilgas.ogm.utah.gov>
- 24 hours prior to testing blowout prevention equipment - contact Dan Jarvis
- 24 hours prior to cementing or testing casing – contact Dan Jarvis
- Within 24 hours of making any emergency changes to the approved drilling program – contact Dustin Doucet
- 24 hours prior to commencing operations to plug and abandon the well – contact Dan Jarvis

**Contact Information:**

The following are Division of Oil, Gas and Mining contacts and their telephone numbers (please leave a voicemail message if the person is not available to take the call):

- Carol Daniels 801-538-5284 - office
- Dustin Doucet 801-538-5281 - office  
801-733-0983 - after office hours
- Dan Jarvis 801-538-5338 - office  
801-231-8956 - after office hours

**Reporting Requirements:**

All reports, forms and submittals as required by the Utah Oil and Gas Conservation General Rules will be promptly filed with the Division of Oil, Gas and Mining, including but not limited to:

- Entity Action Form (Form 6) – due within 5 days of spudding the well
- Monthly Status Report (Form 9) – due by 5th day of the following calendar month
- Requests to Change Plans (Form 9) – due prior to implementation
- Written Notice of Emergency Changes (Form 9) – due within 5 days
- Notice of Operations Suspension or Resumption (Form 9) – due prior to implementation
- Report of Water Encountered (Form 7) – due within 30 days after completion
- Well Completion Report (Form 8) – due within 30 days after completion or plugging

**Approved By:**



For John Rogers  
Associate Director, Oil & Gas

<b>STATE OF UTAH</b> DEPARTMENT OF NATURAL RESOURCES DIVISION OF OIL, GAS, AND MINING		<b>FORM 9</b>
<b>SUNDRY NOTICES AND REPORTS ON WELLS</b>  Do not use this form for proposals to drill new wells, significantly deepen existing wells below current bottom-hole depth, reenter plugged wells, or to drill horizontal laterals. Use APPLICATION FOR PERMIT TO DRILL form for such proposals.		<b>5. LEASE DESIGNATION AND SERIAL NUMBER:</b> ML 21330
<b>1. TYPE OF WELL</b> Gas Well		<b>6. IF INDIAN, ALLOTTEE OR TRIBE NAME:</b>
<b>2. NAME OF OPERATOR:</b> KERR-MCGEE OIL & GAS ONSHORE, L.P.		<b>7. UNIT or CA AGREEMENT NAME:</b> NATURAL BUTTES
<b>3. ADDRESS OF OPERATOR:</b> P.O. Box 173779 1099 18th Street, Suite 600, Denver, CO, 80217 3779		<b>8. WELL NAME and NUMBER:</b> NBU 1021-2901CS
<b>4. LOCATION OF WELL FOOTAGES AT SURFACE:</b> 1984 FSL 0418 FEL <b>QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN:</b> Qtr/Qtr: NESE Section: 29 Township: 10.0S Range: 21.0E Meridian: S		<b>9. API NUMBER:</b> 43047515300000
<b>PHONE NUMBER:</b> 720 929-6515 Ext		<b>9. FIELD and POOL or WILDCAT:</b> NATURAL BUTTES
<b>COUNTY:</b> UINTAH		<b>STATE:</b> UTAH
<b>11. CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA</b>		
<b>TYPE OF SUBMISSION</b>	<b>TYPE OF ACTION</b>	
<input type="checkbox"/> <b>NOTICE OF INTENT</b> Approximate date work will start:	<input type="checkbox"/> <b>ACIDIZE</b>	
<input type="checkbox"/> <b>SUBSEQUENT REPORT</b> Date of Work Completion:	<input type="checkbox"/> <b>ALTER CASING</b>	
<input checked="" type="checkbox"/> <b>SPUD REPORT</b> Date of Spud: 7/21/2011	<input type="checkbox"/> <b>CASING REPAIR</b>	
<input type="checkbox"/> <b>DRILLING REPORT</b> Report Date:	<input type="checkbox"/> <b>CHANGE TO PREVIOUS PLANS</b>	
	<input type="checkbox"/> <b>CHANGE WELL STATUS</b>	
	<input type="checkbox"/> <b>CHANGE WELL TYPE</b>	
	<input type="checkbox"/> <b>DEEPEN</b>	
	<input type="checkbox"/> <b>FRACTURE TREAT</b>	
	<input type="checkbox"/> <b>OPERATOR CHANGE</b>	
	<input type="checkbox"/> <b>PLUG AND ABANDON</b>	
	<input type="checkbox"/> <b>PRODUCTION START OR RESUME</b>	
	<input type="checkbox"/> <b>RECLAMATION OF WELL SITE</b>	
	<input type="checkbox"/> <b>REPERFORATE CURRENT FORMATION</b>	
	<input type="checkbox"/> <b>SIDETRACK TO REPAIR WELL</b>	
	<input type="checkbox"/> <b>TUBING REPAIR</b>	
	<input type="checkbox"/> <b>VENT OR FLARE</b>	
	<input type="checkbox"/> <b>WATER SHUTOFF</b>	
	<input type="checkbox"/> <b>SI TA STATUS EXTENSION</b>	
	<input type="checkbox"/> <b>WILDCAT WELL DETERMINATION</b>	
	<input type="checkbox"/> <b>OTHER</b>	
	OTHER: <input style="width: 100px;" type="text"/>	
<b>12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc.</b> MIRU PETE MARTIN BUCKET RIG. DRILLED 20" CONDUCTOR HOLE TO 40'. RAN 14" 36.7# SCHEDULE 10 PIPE. CMT W/28 SX READY MIX. SPUD WELL LOCATION ON 07/21/2011 AT 1600 HRS.		
<b>Accepted by the          Utah Division of          Oil, Gas and Mining          FOR RECORD ONLY</b>		
<b>NAME (PLEASE PRINT)</b> Sheila Wopsock	<b>PHONE NUMBER</b> 435 781-7024	<b>TITLE</b> Regulatory Analyst
<b>SIGNATURE</b> N/A	<b>DATE</b> 7/25/2011	

## BLM - Vernal Field Office - Notification Form

Operator KERR-McGEE OIL & GAS Rig Name/# BUCKET RIG  
Submitted By ANDY LYTLE Phone Number 720.929.6100  
Well Name/Number NBU 1021-2901CS  
Qtr/Qtr NESE Section 29 Township 10S Range 21E  
Lease Serial Number ML 21330  
API Number 4304751530

Spud Notice – Spud is the initial spudding of the well, not drilling out below a casing string.

Date/Time 07/21/2011 12:00 HRS AM ☐ PM ☐

Casing – Please report time casing run starts, not cementing times.

- ☒ Surface Casing  
☐ Intermediate Casing  
☐ Production Casing  
☐ Liner  
☐ Other

RECEIVED

JUL 20 2011

DIV. OF OIL, GAS & MINING

Date/Time 07/31/2011 08:00 HRS AM ☐ PM ☐

BOPE

- ☐ Initial BOPE test at surface casing point  
☐ BOPE test at intermediate casing point  
☐ 30 day BOPE test  
☐ Other

Date/Time \_\_\_\_\_ AM ☐ PM ☐

Remarks ESTIMATED DATE AND TIME. PLEASE CONTACT KENNY GATHINGS AT

435.828.0986 OR LOVEL YOUNG AT 435.781.7051

STATE OF UTAH  
DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF OIL, GAS AND MINING

FORM 6

**ENTITY ACTION FORM**

Operator: KERR McGEE OIL & GAS ONSHORE LP Operator Account Number: N 2995  
Address: 1368 SOUTH 1200 EAST  
city VERNAL  
state UT zip 84078 Phone Number: (435) 781-7024

Well 1

API Number	Well Name		QQ	Sec	Twp	Rng	County
4304751531	NBU 1021-29P1CS		NESE	29	10S	21E	UINTAH
Action Code	Current Entity Number	New Entity Number	Spud Date		Entity Assignment Effective Date		
<u>B</u>	99999	<u>2900</u>	7/21/2011		<u>7/26/11</u>		
Comments: MIRU PETE MARTIN BUCKET RIG. <u>WSMVD</u> SPUD WELL ON 07/21/2011 AT 0930 HRS. <u>BHL = SESE</u>							

Well 2

API Number	Well Name		QQ	Sec	Twp	Rng	County
4304751528	NBU 1021-29I1CS		NESE	29	10S	21E	UINTAH
Action Code	Current Entity Number	New Entity Number	Spud Date		Entity Assignment Effective Date		
<u>B</u>	99999	<u>2900</u>	7/21/2011		<u>7/26/11</u>		
Comments: MIRU PETE MARTIN BUCKET RIG. <u>WSMVD</u> SPUD WELL ON 07/21/2011 AT 1300 HRS. <u>BHL = NESE</u>							

Well 3

API Number	Well Name		QQ	Sec	Twp	Rng	County
4304751530	NBU 1021-29O1CS		NESE	29	10S	21E	UINTAH
Action Code	Current Entity Number	New Entity Number	Spud Date		Entity Assignment Effective Date		
<u>B</u>	99999	<u>2900</u>	7/21/2011		<u>7/26/11</u>		
Comments: MIRU PETE MARTIN BUCKET RIG. <u>WSMVD</u> SPUD WELL ON 07/21/2011 AT 1600 HRS. <u>BHL = SWSE</u>							

**ACTION CODES:**

- A - Establish new entity for new well (single well only)
- B - Add new well to existing entity (group or unit well)
- C - Re-assign well from one existing entity to another existing entity
- D - Re-assign well from one existing entity to a new entity
- E - Other (Explain in 'comments' section)

SHEILA WOPSOCK

Name (Please Print)

Signature

REGULATORY ANALYST

Title

7/22/2011

Date

(5/2000)

RECEIVED

JUL 26 2011

DIV. OF OIL, GAS & MINING



<b>STATE OF UTAH</b> DEPARTMENT OF NATURAL RESOURCES DIVISION OF OIL, GAS, AND MINING		<b>FORM 9</b>
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<b>2. NAME OF OPERATOR:</b> KERR-MCGEE OIL & GAS ONSHORE, L.P.		<b>7. UNIT or CA AGREEMENT NAME:</b> NATURAL BUTTES
<b>3. ADDRESS OF OPERATOR:</b> P.O. Box 173779 1099 18th Street, Suite 600, Denver, CO, 80217 3779		<b>8. WELL NAME and NUMBER:</b> NBU 1021-2901CS
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<b>COUNTY:</b> UINTAH		<b>STATE:</b> UTAH

11. CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION		
<input type="checkbox"/> <b>NOTICE OF INTENT</b> Approximate date work will start:	<input type="checkbox"/> ACIDIZE <input type="checkbox"/> CHANGE TO PREVIOUS PLANS <input type="checkbox"/> CHANGE WELL STATUS <input type="checkbox"/> DEEPEN <input type="checkbox"/> OPERATOR CHANGE <input type="checkbox"/> PRODUCTION START OR RESUME <input type="checkbox"/> REPERFORATE CURRENT FORMATION <input type="checkbox"/> TUBING REPAIR <input type="checkbox"/> WATER SHUTOFF <input type="checkbox"/> WILDCAT WELL DETERMINATION	<input type="checkbox"/> ALTER CASING <input type="checkbox"/> CHANGE TUBING <input type="checkbox"/> COMMINGLE PRODUCING FORMATIONS <input type="checkbox"/> FRACTURE TREAT <input type="checkbox"/> PLUG AND ABANDON <input type="checkbox"/> RECLAMATION OF WELL SITE <input type="checkbox"/> SIDETRACK TO REPAIR WELL <input type="checkbox"/> VENT OR FLARE <input type="checkbox"/> SI TA STATUS EXTENSION <input type="checkbox"/> OTHER	<input type="checkbox"/> CASING REPAIR <input type="checkbox"/> CHANGE WELL NAME <input type="checkbox"/> CONVERT WELL TYPE <input type="checkbox"/> NEW CONSTRUCTION <input type="checkbox"/> PLUG BACK <input type="checkbox"/> RECOMPLETE DIFFERENT FORMATION <input type="checkbox"/> TEMPORARY ABANDON <input type="checkbox"/> WATER DISPOSAL <input type="checkbox"/> APD EXTENSION OTHER: <input style="width: 100px;" type="text"/>
<input type="checkbox"/> <b>SUBSEQUENT REPORT</b> Date of Work Completion:			
<input type="checkbox"/> <b>SPUD REPORT</b> Date of Spud:			
<input checked="" type="checkbox"/> <b>DRILLING REPORT</b> Report Date: 7/29/2011			

12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc.  
 MIRU AIR RIG ON JULY 27, 2011. DRILLED SURFACE HOLE TO 2160'. RAN SURFACE CASING AND CEMENTED. WELL IS WAITING ON ROTARY RIG. DETAILS OF CEMENT JOB WILL BE INCLUDED WITH WELL COMPLETION REPORT.

**Accepted by the  
 Utah Division of  
 Oil, Gas and Mining  
 FOR RECORD ONLY**

<b>NAME (PLEASE PRINT)</b> Andy Lytle	<b>PHONE NUMBER</b> 720 929-6100	<b>TITLE</b> Regulatory Analyst
<b>SIGNATURE</b> N/A	<b>DATE</b> 7/29/2011	

<b>STATE OF UTAH</b> DEPARTMENT OF NATURAL RESOURCES DIVISION OF OIL, GAS, AND MINING		<b>FORM 9</b>
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<b>TYPE OF SUBMISSION</b>	<b>TYPE OF ACTION</b>	
<input type="checkbox"/> NOTICE OF INTENT Approximate date work will start:	<input type="checkbox"/> ACIDIZE	
<input type="checkbox"/> SUBSEQUENT REPORT Date of Work Completion:	<input type="checkbox"/> ALTER CASING	
<input type="checkbox"/> SPUD REPORT Date of Spud:	<input type="checkbox"/> CASING REPAIR	
<input checked="" type="checkbox"/> DRILLING REPORT Report Date: 9/7/2011	<input type="checkbox"/> CHANGE TO PREVIOUS PLANS	
	<input type="checkbox"/> CHANGE TUBING	
	<input type="checkbox"/> CHANGE WELL STATUS	
	<input type="checkbox"/> COMMINGLE PRODUCING FORMATIONS	
	<input type="checkbox"/> DEEPEN	
	<input type="checkbox"/> FRACTURE TREAT	
	<input type="checkbox"/> OPERATOR CHANGE	
	<input type="checkbox"/> PLUG AND ABANDON	
	<input type="checkbox"/> PRODUCTION START OR RESUME	
	<input type="checkbox"/> RECLAMATION OF WELL SITE	
	<input type="checkbox"/> REPERFORATE CURRENT FORMATION	
	<input type="checkbox"/> SIDETRACK TO REPAIR WELL	
	<input type="checkbox"/> TUBING REPAIR	
	<input type="checkbox"/> VENT OR FLARE	
	<input type="checkbox"/> WATER SHUTOFF	
	<input type="checkbox"/> SI TA STATUS EXTENSION	
	<input type="checkbox"/> WILDCAT WELL DETERMINATION	
	<input type="checkbox"/> OTHER: <input style="width: 100px;" type="text"/>	
<b>12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc.</b> MIRU ROTARY RIG. FINISHED DRILLING FROM 2160' TO 9600' ON SEPT 5, 2011. RAN 4-1/2" 11.6# I-80 PRODUCTION CASING. CEMENTED PRODUCTION CASING. RELEASED H&P RIG 311 ON SEPT 7, 2011 @ 13:30 HRS. DETAILS OF CEMENT JOB WILL BE INCLUDED WITH THE WELL COMPLETION REPORT. WELL IS WAITING ON FINAL COMPLETION ACTIVITIES.		
<div style="text-align: right;"> <b>Accepted by the</b>  <b>Utah Division of</b>  <b>Oil, Gas and Mining</b>  <b>FOR RECORD ONLY</b> </div>		
<b>NAME (PLEASE PRINT)</b> Andy Lytle		<b>PHONE NUMBER</b> 720 929-6100
<b>SIGNATURE</b> N/A		<b>TITLE</b> Regulatory Analyst
<b>DATE</b> 9/8/2011		

<b>STATE OF UTAH</b> DEPARTMENT OF NATURAL RESOURCES DIVISION OF OIL, GAS, AND MINING		<b>FORM 9</b>			
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<b>TYPE OF SUBMISSION</b>	<b>TYPE OF ACTION</b>				
<input type="checkbox"/> NOTICE OF INTENT Approximate date work will start:  <input type="checkbox"/> SUBSEQUENT REPORT Date of Work Completion:  <input type="checkbox"/> SPUD REPORT Date of Spud:  <input checked="" type="checkbox"/> DRILLING REPORT Report Date: 10/20/2011	<table style="width: 100%; border: none;"> <tr> <td style="width: 33%; vertical-align: top;"> <input type="checkbox"/> ACIDIZE  <input type="checkbox"/> CHANGE TO PREVIOUS PLANS  <input type="checkbox"/> CHANGE WELL STATUS  <input type="checkbox"/> DEEPEN  <input type="checkbox"/> OPERATOR CHANGE  <input checked="" type="checkbox"/> PRODUCTION START OR RESUME  <input type="checkbox"/> REPERFORATE CURRENT FORMATION  <input type="checkbox"/> TUBING REPAIR  <input type="checkbox"/> WATER SHUTOFF  <input type="checkbox"/> WILDCAT WELL DETERMINATION         </td> <td style="width: 33%; vertical-align: top;"> <input type="checkbox"/> ALTER CASING  <input type="checkbox"/> CHANGE TUBING  <input type="checkbox"/> COMMINGLE PRODUCING FORMATIONS  <input type="checkbox"/> FRACTURE TREAT  <input type="checkbox"/> PLUG AND ABANDON  <input type="checkbox"/> RECLAMATION OF WELL SITE  <input type="checkbox"/> SIDETRACK TO REPAIR WELL  <input type="checkbox"/> VENT OR FLARE  <input type="checkbox"/> SI TA STATUS EXTENSION  <input type="checkbox"/> OTHER         </td> <td style="width: 33%; vertical-align: top;"> <input type="checkbox"/> CASING REPAIR  <input type="checkbox"/> CHANGE WELL NAME  <input type="checkbox"/> CONVERT WELL TYPE  <input type="checkbox"/> NEW CONSTRUCTION  <input type="checkbox"/> PLUG BACK  <input type="checkbox"/> RECOMPLETE DIFFERENT FORMATION  <input type="checkbox"/> TEMPORARY ABANDON  <input type="checkbox"/> WATER DISPOSAL  <input type="checkbox"/> APD EXTENSION            OTHER: <input style="width: 100px;" type="text"/> </td> </tr> </table>		<input type="checkbox"/> ACIDIZE <input type="checkbox"/> CHANGE TO PREVIOUS PLANS <input type="checkbox"/> CHANGE WELL STATUS <input type="checkbox"/> DEEPEN <input type="checkbox"/> OPERATOR CHANGE <input checked="" type="checkbox"/> PRODUCTION START OR RESUME <input type="checkbox"/> REPERFORATE CURRENT FORMATION <input type="checkbox"/> TUBING REPAIR <input type="checkbox"/> WATER SHUTOFF <input type="checkbox"/> WILDCAT WELL DETERMINATION	<input type="checkbox"/> ALTER CASING <input type="checkbox"/> CHANGE TUBING <input type="checkbox"/> COMMINGLE PRODUCING FORMATIONS <input type="checkbox"/> FRACTURE TREAT <input type="checkbox"/> PLUG AND ABANDON <input type="checkbox"/> RECLAMATION OF WELL SITE <input type="checkbox"/> SIDETRACK TO REPAIR WELL <input type="checkbox"/> VENT OR FLARE <input type="checkbox"/> SI TA STATUS EXTENSION <input type="checkbox"/> OTHER	<input type="checkbox"/> CASING REPAIR <input type="checkbox"/> CHANGE WELL NAME <input type="checkbox"/> CONVERT WELL TYPE <input type="checkbox"/> NEW CONSTRUCTION <input type="checkbox"/> PLUG BACK <input type="checkbox"/> RECOMPLETE DIFFERENT FORMATION <input type="checkbox"/> TEMPORARY ABANDON <input type="checkbox"/> WATER DISPOSAL <input type="checkbox"/> APD EXTENSION OTHER: <input style="width: 100px;" type="text"/>
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<b>12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc.</b> THE SUBJECT WELL WAS PLACED ON PRODUCTION ON 10/20/2011 AT 0900 HRS. THE CHRONOLOGICAL WELL HISTORY WILL BE SUBMITTED WITH THE WELL COMPLETION REPORT.					
<b>Accepted by the          Utah Division of          Oil, Gas and Mining          FOR RECORD ONLY</b>					
<b>NAME (PLEASE PRINT)</b> Sheila Wopsock		<b>PHONE NUMBER</b> 435 781-7024			
<b>SIGNATURE</b> N/A		<b>TITLE</b> Regulatory Analyst			
<b>DATE</b> 10/21/2011					

<b>STATE OF UTAH</b> DEPARTMENT OF NATURAL RESOURCES DIVISION OF OIL, GAS, AND MINING		<b>FORM 9</b>
<b>SUNDRY NOTICES AND REPORTS ON WELLS</b>  Do not use this form for proposals to drill new wells, significantly deepen existing wells below current bottom-hole depth, reenter plugged wells, or to drill horizontal laterals. Use APPLICATION FOR PERMIT TO DRILL form for such proposals.		<b>5. LEASE DESIGNATION AND SERIAL NUMBER:</b> ML 21330
<b>1. TYPE OF WELL</b> Gas Well		<b>6. IF INDIAN, ALLOTTEE OR TRIBE NAME:</b>
<b>2. NAME OF OPERATOR:</b> KERR-MCGEE OIL & GAS ONSHORE, L.P.		<b>7. UNIT or CA AGREEMENT NAME:</b> NATURAL BUTTES
<b>3. ADDRESS OF OPERATOR:</b> P.O. Box 173779 1099 18th Street, Suite 600, Denver, CO, 80217 3779		<b>8. WELL NAME and NUMBER:</b> NBU 1021-2901CS
<b>4. LOCATION OF WELL FOOTAGES AT SURFACE:</b> 1984 FSL 0418 FEL <b>QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN:</b> Qtr/Qtr: NESE Section: 29 Township: 10.0S Range: 21.0E Meridian: S		<b>9. API NUMBER:</b> 43047515300000
<b>11. CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA</b>		<b>9. FIELD and POOL or WILDCAT:</b> NATURAL BUTTES
<b>TYPE OF SUBMISSION</b>	<b>TYPE OF ACTION</b>	
<input type="checkbox"/> NOTICE OF INTENT Approximate date work will start:  <input type="checkbox"/> SUBSEQUENT REPORT Date of Work Completion:  <input type="checkbox"/> SPUD REPORT Date of Spud:  <input checked="" type="checkbox"/> DRILLING REPORT Report Date: 10/20/2011	<div style="display: flex; flex-wrap: wrap;"> <div style="width: 33%;"> <input type="checkbox"/> ACIDIZE  <input type="checkbox"/> CHANGE TO PREVIOUS PLANS  <input type="checkbox"/> CHANGE WELL STATUS  <input type="checkbox"/> DEEPEN  <input type="checkbox"/> OPERATOR CHANGE  <input checked="" type="checkbox"/> PRODUCTION START OR RESUME  <input type="checkbox"/> REPERFORATE CURRENT FORMATION  <input type="checkbox"/> TUBING REPAIR  <input type="checkbox"/> WATER SHUTOFF  <input type="checkbox"/> WILDCAT WELL DETERMINATION         </div> <div style="width: 33%;"> <input type="checkbox"/> ALTER CASING  <input type="checkbox"/> CHANGE TUBING  <input type="checkbox"/> COMMINGLE PRODUCING FORMATIONS  <input type="checkbox"/> FRACTURE TREAT  <input type="checkbox"/> PLUG AND ABANDON  <input type="checkbox"/> RECLAMATION OF WELL SITE  <input type="checkbox"/> SIDETRACK TO REPAIR WELL  <input type="checkbox"/> VENT OR FLARE  <input type="checkbox"/> SI TA STATUS EXTENSION  <input type="checkbox"/> OTHER         </div> <div style="width: 33%;"> <input type="checkbox"/> CASING REPAIR  <input type="checkbox"/> CHANGE WELL NAME  <input type="checkbox"/> CONVERT WELL TYPE  <input type="checkbox"/> NEW CONSTRUCTION  <input type="checkbox"/> PLUG BACK  <input type="checkbox"/> RECOMPLETE DIFFERENT FORMATION  <input type="checkbox"/> TEMPORARY ABANDON  <input type="checkbox"/> WATER DISPOSAL  <input type="checkbox"/> APD EXTENSION            OTHER: <input style="width: 100px;" type="text"/> </div> </div>	
<b>12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc.</b> THE SUBJECT WELL WAS PLACED ON PRODUCTION ON 10/20/2011 AT 0900 HRS. THE CHRONOLOGICAL WELL HISTORY WILL BE SUBMITTED WITH THE WELL COMPLETION REPORT.		
<b>Accepted by the          Utah Division of          Oil, Gas and Mining          FOR RECORD ONLY</b>		
<b>NAME (PLEASE PRINT)</b> Sheila Wopsock		<b>PHONE NUMBER</b> 435 781-7024
<b>SIGNATURE</b> N/A		<b>TITLE</b> Regulatory Analyst
<b>DATE</b> 10/21/2011		

STATE OF UTAH  
DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF OIL, GAS AND MINING

AMENDED REPORT ☐ FORM 8  
(highlight changes)

WELL COMPLETION OR RECOMPLETION REPORT AND LOG

1a. TYPE OF WELL:		OIL WELL <input type="checkbox"/>	GAS WELL <input checked="" type="checkbox"/>	DRY <input type="checkbox"/>	OTHER <input type="checkbox"/>		
b. TYPE OF WORK:		NEW WELL <input checked="" type="checkbox"/>	HORIZ. LATS. <input type="checkbox"/>	DEEP-EN <input type="checkbox"/>	RE-ENTRY <input type="checkbox"/>	DIFF. RESVR. <input type="checkbox"/>	OTHER <input type="checkbox"/>
2. NAME OF OPERATOR: KERR MCGEE OIL & GAS ONSHORE, L.P.						5. LEASE DESIGNATION AND SERIAL NUMBER: ML 21330	
3. ADDRESS OF OPERATOR: P.O. BOX 173779 CITY DENVER STATE CO ZIP 80217				PHONE NUMBER: (720) 929-6100		6. IF INDIAN, ALLOTTEE OR TRIBE NAME	
4. LOCATION OF WELL (FOOTAGES) AT SURFACE: NESE 1984 FSL 418 FEL S29, T10S, R21E AT TOP PRODUCING INTERVAL REPORTED BELOW: SWSE 857 FSL 1843 FEL S29, T10S, R21E AT TOTAL DEPTH: SWSE 833 FSL 1830 FEL S29, T10S, R21E						7. UNIT or CA AGREEMENT NAME UTUL63047A	
11. QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN: NESE 29 10S 21E S						8. WELL NAME and NUMBER: NBU 1021-2901CS	
12. COUNTY UINTAH						13. STATE UTAH	
14. DATE SPUDED: 7/21/2011		15. DATE T.D. REACHED: 9/5/2011		16. DATE COMPLETED: 10/20/2011		17. ELEVATIONS (DF, RKB, RT, GL): 5253 GL	
18. TOTAL DEPTH: MD 9,600 TVD 9,277		19. PLUG BACK T.D.: MD 9,547 TVD 9,224		20. IF MULTIPLE COMPLETIONS, HOW MANY? *		21. DEPTH BRIDGE MD PLUG SET: TVD	

22. TYPE ELECTRIC AND OTHER MECHANICAL LOGS RUN (Submit copy of each) CBL/GR/CT-BHV-SD/DSN/ACTR	23. WAS WELL CORED? NO <input checked="" type="checkbox"/> YES <input type="checkbox"/> (Submit analysis) WAS DST RUN? NO <input checked="" type="checkbox"/> YES <input type="checkbox"/> (Submit report) DIRECTIONAL SURVEY? NO <input type="checkbox"/> YES <input checked="" type="checkbox"/> (Submit copy)
--	---

24. CASING AND LINER RECORD (Report all strings set in well)

HOLE SIZE	SIZE/GRADE	WEIGHT (#/ft.)	TOP (MD)	BOTTOM (MD)	STAGE CEMENTER DEPTH	CEMENT TYPE & NO. OF SACKS	SLURRY VOLUME (BBL)	CEMENT TOP **	AMOUNT PULLED
20"	14" STL	36.7#	0	40		28			
11"	8 5/8" IJ-55	28#	0	2,154		550		0	
7 7/8"	4 1/2" I-80	11.6#	0	9,590		1,682		1030	

25. TUBING RECORD

SIZE	DEPTH SET (MD)	PACKER SET (MD)	SIZE	DEPTH SET (MD)	PACKER SET (MD)	SIZE	DEPTH SET (MD)	PACKER SET (MD)
2 3/8"	8,829							

26. PRODUCING INTERVALS

FORMATION NAME	TOP (MD)	BOTTOM (MD)	TOP (TVD)	BOTTOM (TVD)	INTERVAL (Top/Bot - MD)	SIZE	NO. HOLES	PERFORATION STATUS
(A) WASATCH	6,898	7,059			6,898 7,059	0.36	24	Open <input checked="" type="checkbox"/> Squeezed <input type="checkbox"/>
(B) MESAVERDE	7,549	9,144			7,549 9,144	0.36	88	Open <input checked="" type="checkbox"/> Squeezed <input type="checkbox"/>
(C)								Open <input type="checkbox"/> Squeezed <input type="checkbox"/>
(D)								Open <input type="checkbox"/> Squeezed <input type="checkbox"/>

27. PERFORATION RECORD

28. ACID, FRACTURE, TREATMENT, CEMENT SQUEEZE, ETC.

DEPTH INTERVAL	AMOUNT AND TYPE OF MATERIAL
6898 - 9144	PUMP 4,893 BBLS SLICK H2O & 100,367 LBS 30/50 OTTAWA SAND 5 STAGES

29. ENCLOSED ATTACHMENTS:

- ☐ ELECTRICAL/MECHANICAL LOGS ☐ GEOLOGIC REPORT ☐ DST REPORT ☒ DIRECTIONAL SURVEY  
☐ SUNDRY NOTICE FOR PLUGGING AND CEMENT VERIFICATION ☐ CORE ANALYSIS ☐ OTHER:

30. WELL STATUS:

PROD  
RECEIVED

NOV 28 2011

## 31. INITIAL PRODUCTION

## INTERVAL A (As shown in Item #26)

DATE FIRST PRODUCED: 10/20/2011	TEST DATE: 10/31/2011	HOURS TESTED: 24	TEST PRODUCTION RATES: →	OIL – BBL: 126	GAS – MCF: 1,399	WATER – BBL: 165	PROD. METHOD: FLOWING
CHOKE SIZE: 20/64	TBG. PRESS. 843	CSG. PRESS. 1,383	API GRAVITY	BTU – GAS	GAS/OIL RATIO	24 HR PRODUCTION RATES: →	INTERVAL STATUS: PROD

## INTERVAL B (As shown in Item #26)

DATE FIRST PRODUCED:	TEST DATE:	HOURS TESTED:	TEST PRODUCTION RATES: →	OIL – BBL:	GAS – MCF:	WATER – BBL:	PROD. METHOD:
CHOKE SIZE:	TBG. PRESS.	CSG. PRESS.	API GRAVITY	BTU – GAS	GAS/OIL RATIO	24 HR PRODUCTION RATES: →	INTERVAL STATUS:

## INTERVAL C (As shown in Item #26)

DATE FIRST PRODUCED:	TEST DATE:	HOURS TESTED:	TEST PRODUCTION RATES: →	OIL – BBL:	GAS – MCF:	WATER – BBL:	PROD. METHOD:
CHOKE SIZE:	TBG. PRESS.	CSG. PRESS.	API GRAVITY	BTU – GAS	GAS/OIL RATIO	24 HR PRODUCTION RATES: →	INTERVAL STATUS:

## INTERVAL D (As shown in Item #26)

DATE FIRST PRODUCED:	TEST DATE:	HOURS TESTED:	TEST PRODUCTION RATES: →	OIL – BBL:	GAS – MCF:	WATER – BBL:	PROD. METHOD:
CHOKE SIZE:	TBG. PRESS.	CSG. PRESS.	API GRAVITY	BTU – GAS	GAS/OIL RATIO	24 HR PRODUCTION RATES: →	INTERVAL STATUS:

## 32. DISPOSITION OF GAS (Sold, Used for Fuel, Vented, Etc.)

## 33. SUMMARY OF POROUS ZONES (Include Aquifers):

Show all important zones of porosity and contents thereof. Cored intervals and all drill-stem tests, including depth interval tested, cushion used, time tool open, flowing and shut-in pressures and recoveries.

## 34. FORMATION (Log) MARKERS:

Formation	Top (MD)	Bottom (MD)	Descriptions, Contents, etc.	Name	Top (Measured Depth)
				GREEN RIVER	1,066
				MAHOGANY	1,716
				WASATCH	4,424
				MESAVERDE	7,375

## 35. ADDITIONAL REMARKS (Include plugging procedure)

The first 210' of the surface hole was drilled with a 12 1/4" bit. The remainder of surface hole was drilled with an 11" bit. Attached is the chronological well history, perforation report & final survey.

36. I hereby certify that the foregoing and attached information is complete and correct as determined from all available records.

NAME (PLEASE PRINT) JAIME SCHARNOWSKETITLE REGULATORY ANALYSTSIGNATURE Jaime ScharnowskDATE 11/17/2011

This report must be submitted within 30 days of

- completing or plugging a new well
- drilling horizontal laterals from an existing well bore
- recompleting to a different producing formation
- reentering a previously plugged and abandoned well
- significantly deepening an existing well bore below the previous bottom-hole depth
- drilling hydrocarbon exploratory holes, such as core samples and stratigraphic tests

\* ITEM 20: Show the number of completions if production is measured separately from two or more formations.

\*\* ITEM 24: Cement Top – Show how reported top(s) of cement were determined (circulated (CIR), calculated (CAL), cement bond log (CBL), temperature survey (TS)).

Send to: Utah Division of Oil, Gas and Mining  
1594 West North Temple, Suite 1210  
Box 145801  
Salt Lake City, Utah 84114-5801

Phone: 801-538-5340

Fax: 801-359-3940

**US ROCKIES REGION**  
**Operation Summary Report**

Well: NBU 1021-2901CS YELLOW		Spud Conductor: 7/21/2011		Spud Date: 7/27/2011	
Project: UTAH-UINTAH		Site: NBU 1021-29I PAD			Rig Name No: H&P 311/311, PROPETRO 11/11
Event: DRILLING		Start Date: 7/16/2011		End Date: 9/7/2011	
Active Datum: RKB @5,281.00usft (above Mean Sea Level)		UWI: NE/SE/0/10/S/21/E/29/0/0/26/PM/S/1984/E/0/418/0/0			

Date	Time Start-End	Duration (hr)	Phase	Code	Sub Code	P/U	MD From (usft)	Operation
7/27/2011	8:00 - 12:00	4.00	DRLSUR	01	C	P		SKID RIG TO 3 RD WELL ON PAD WAIT ON INSPECTION OF BHA
	12:00 - 13:30	1.50	DRLSUR	02	C	P		SPUD WELL DRILL 12.25" HOLE F/ 40' - 210' WOB 18-22 ROT 45-55 DHR 96 600 GPM
	13:30 - 16:00	2.50	DRLSUR	06	A	P		TOOH INSTALL DIRECTIONAL TOOLS AND ORIENT MWD TO MUD MOTOR TIH
	16:00 - 18:00	2.00	DRLSUR	02	C	P		DRILL 11" HOLE F/ 210' - 450' WOB 20-22 ROT 45-55 DHR 96 GPM 600 NO LOSSES
	18:00 - 22:00	4.00	DRLSUR	08	A	Z		BLOWN HYDRAULIC HOSE WAIT ON HOSE FROM TOWN AND REPLACE
	22:00 - 0:00	2.00	DRLSUR	02	C	P		DRILL 11" HOLE F/ 450' - 650' WOB 20-22 ROT 45-55 DHR 96 GPM 600 NO LOSSES
7/28/2011	0:00 - 15:00	15.00	DRLSUR	02	C	P		DRILL 11" HOLE F/ 650' - 2160' WOB 20-22 RIT 45-55 DHR 96 LAST SURVEY 21.88 DEG 229.22 AZI
	15:00 - 16:00	1.00	DRLSUR	05	C	P		CIRCULATE AND CONDITION MUD PRIOR TO LDDS TOOLS
	16:00 - 20:30	4.50	DRLSUR	06	A	P		
	20:30 - 0:00	3.50	DRLSUR	12	C	P		RIG UP A DN RUN 50 JOINTS 8.625 28# J55 SURFACE CASING SHOE AT 2132'
7/29/2011	0:00 - 0:30	0.50	DRLSUR	12	C	P		FINISH RUNNING CASING SHOE AT 2132'
	0:30 - 3:00	2.50	DRLSUR	12	E	P		TEST LINES TO 2000' PSI, PUMP 140 BBLS OF H2O , PUMP 20 BBLS OF GEL WATER. PUMP 200 (122 BBLS) SX OF 11#, 3.82 YD, 23 GAL SX HI FILL LEAD CEMENT. PUMP 200 SX (41 BBLS) OF 15.8#, 1.15 YD, 5 GAL/SK TAIL CEMENT, DROP PLUG ON FLY AND DISPLACE W/ 137 BBLS OF 8.3# H2O, 15BBLS OF LEAD TO SURFACE W/ 500 PSI OF LIFT @ 5 BBLS/MIN. W/ LAND PLUG 1000 PSI AND CHECK FLOAT. FLOAT HELD. PUMP 150 SX OF 4% CALC 15.8# 1.15 YD, 5 GAL/SK CEMENT DOWN 1". CEMENT TO SURFACE. RELEASE RIG AT 0300
	3:00 - 3:00	0.00	DRLSUR					CONDUCTOR CASING: Cond. Depth set:40' Cement sx used:28
SPUD DATE/TIME:7/27/2011 12:00								
SURFACE HOLE: Surface From depth:40' Surface To depth:2,160 Total SURFACE hours:20.50 Surface Casing size:8 5/8 # of casing joints ran:48 Casing set MD:2,132.0 # sx of cement:200/200/150 Cement blend (ppg):11.0/15.8/15.8 Cement yield (ft3/sk):3.82/1.15/1.15 # of bbls to surface:30 Describe cement issues:NONE Describe hole issues:NONE								
9/1/2011	0:00 - 2:00	2.00	MIRU	01	C	P		SKID RIG IN OFF THE NBU 1021-29I1CS ,CENTER RIG OVER HOLE



## US ROCKIES REGION

## Operation Summary Report

Well: NBU 1021-2901CS YELLOW

Spud Conductor: 7/21/2011

Spud Date: 7/27/2011

Project: UTAH-UINTAH

Site: NBU 1021-29I PAD

Rig Name No: H&amp;P 311/311, PROPETRO 11/11

Event: DRILLING

Start Date: 7/16/2011

End Date: 9/7/2011

Active Datum: RKB @5,281.00usft (above Mean Sea Level)

UWI: NE/SE/0/10/S/21/E/29/0/0/26/PM/S/1984/E/0/418/0/0

Date	Time Start-End	Duration (hr)	Phase	Code	Sub Code	P/U	MD From (usft)	Operation
	2:00 - 3:00	1.00	MIRU	14	A	P		NIPPLE UP 11" 5K BOPE,INSTALL FLOW LINE,SET "V" DOOR,CATWALK & MOUSE HOLE,R/U GERONIMO LINE,FILL PITS WH20
	3:00 - 9:00	6.00	MIRU	15	A	P		HOLD SAFTEY MEETING, RU QUICK TEST ,PRESS TEST THE BOP, TIW, DART VALVE, BOP VALVES, PIPE RAMS, BLIND RAMS, CHOKE VALVES AND KILL LINE TO 250 PSI LOW/5MIN AND 5000 PSI HIGH/10 MIN. TESTED THE ANNULAR T/250 PSI LOW & 2500 PSI HIGH,TEST 8 5/8" CSG T/1500 PSI ( OK ) SERVICE RIG
	9:00 - 10:00	1.00	DRLPRO	07	A	P		
	10:00 - 12:30	2.50	DRLPRO	06	A	P		INSTALL WEAR BUSHING,P/U MM,M/U 7 7/8" Q 506F BIT,P/U DIR TOOLS & SCRIBE,TIH,TAG CEMENT @ 2027'
	12:30 - 13:30	1.00	DRLPRO	09	A	P		CUT & SLIP 80' DRLG LINE
	13:30 - 15:00	1.50	DRLPRO	02	F	P		DRILL OUT CEMENT & 8 5/8"SURF. CSG FLOAT EQUIP F/2027' T/2181'
	15:00 - 0:00	9.00	DRLPRO	02	D	P		DRILL 7 7/8" PROD HOLE F/2181' T/3491' ,1310' @ 145'/HR WOB/12/25K, MM/116 RPM TD/60 RPM,PUMP 1/2,61SPM,550 GPM, ON/OFF PUMP PRESS 1150 PSI/1540 PSI, PU/SO/ROT 128/82/98,TORQUE ON/OFF 8000/6000,MW 8.6 LB/GAL,VIS 26,CIRC RESERVE PIT,ROTATE 88%,SLIDE 12%
9/2/2011	0:00 - 12:00	12.00	DRLPRO	02	D	P		DRILL 7 7/8" PROD HOLE,ROTATE & SLIDE, F/3491' T/4810' ,1319' @ 110'/HR WOB/12/25K, MM/116 RPM TD/60 RPM,PUMP 1/2,61SPM,550 GPM, ON/OFF PUMP PRESS,1760 PSI/1360 PSI, PU/SO/ROT 155/90/117,TORQUE ON/OFF 12,000/9,000,MW 8.5 LB/GAL,VIS 26,CIRC RESERVE PIT,ROTATE 919',SLIDE 400'
	12:00 - 0:00	12.00	DRLPRO	02	D	P		DRILL 7 7/8" PROD HOLE,ROTATE & SLIDE, F/4810' T/6244' ,1434' @ 119'/HR WOB/12/25K, MM/116 RPM TD/60 RPM,PUMP 1/2,61SPM,550 GPM, ON/OFF PUMP PRESS,1930 PSI/1435 PSI, PU/SO/ROT 230/108/142,TORQUE ON/OFF 15,000/10,000,MW 8.5 LB/GAL,VIS 26,CIRC RESERVE PIT,ROTATE 1222',SLIDE 212'
9/3/2011	0:00 - 12:00	12.00	DRLPRO	02	D	P		DRILL 7 7/8" PROD HOLE,ROTATE & SLIDE, F/6244' T/7359' ,1115' @ 93'/HR WOB/12/25K, MM/116 RPM TD/60 RPM,PUMP 1/2,61SPM,550 GPM, ON/OFF PUMP PRESS,1930 PSI/1550 PSI, PU/SO/ROT 230/120/162,TORQUE ON/OFF 16,000/15,000,MW 8.6 LB/GAL,VIS 26,CIRC RESERVE PIT,ROTATE 1089',SLIDE26 '
	12:00 - 17:30	5.50	DRLPRO	02	D	P		DRILL 7 7/8" PROD HOLE,ROTATE & SLIDE, F/7359' T/7641' ,282' @ 51'/HR WOB/12/25K, MM/116 RPM TD/60 RPM,PUMP 1/2,61SPM,550 GPM, ON/OFF PUMP PRESS,1930 PSI/1550 PSI, PU/SO/ROT 275/125/165,TORQUE ON/OFF 17,000/15,000,MW 8.5 LB/GAL,VIS 26,CIRC RESERVE PIT,ROTATE 256',SLIDE 26 '
	17:30 - 18:00	0.50	DRLPRO	07	A	P		SERVICE RIG

**US ROCKIES REGION**  
**Operation Summary Report**

Well: NBU 1021-2901CS YELLOW		Spud Conductor: 7/21/2011		Spud Date: 7/27/2011	
Project: UTAH-UINTAH		Site: NBU 1021-29I PAD		Rig Name No: H&P 311/311, PROPETRO 11/11	
Event: DRILLING		Start Date: 7/16/2011		End Date: 9/7/2011	
Active Datum: RKB @5,281.00usft (above Mean Sea Level)		UWI: NE/SE/0/10/S/21/E/29/0/0/26/PM/S/1984/E/0/418/0/0			

Date	Time Start-End	Duration (hr)	Phase	Code	Sub Code	P/U	MD From (usft)	Operation
	18:00 - 0:00	6.00	DRLPRO	02	D	P		DRILL 7 7/8" PROD HOLE, ROTATE & SLIDE, F/7641' T/8021' ,380' @ 63'/HR WOB/12/25K, MM/116 RPM TD/60 RPM,PUMP #2,110 SPM,495 GPM, ON/OFF PUMP PRESS,2035 PSI/1880 PSI, PU/SO/ROT 210/127/166,TORQUE ON/OFF 21,000/18,000,MW 9.2 LB/GAL,VIS 37,ROTATE 321',SLIDE 51'(START MUD UP @ 7800')
9/4/2011	0:00 - 15:00	15.00	DRLPRO	02	D	P		DRILL 7 7/8" PROD HOLE, ROTATE & SLIDE, F/8021' T/8774' ,753' @ 50'/HR WOB/12/25K, MM/116 RPM TD/60 RPM,PUMP #2,110 SPM,495 GPM, ON/OFF PUMP PRESS,2200 PSI/1970 PSI, PU/SO/ROT 210/127/174,TORQUE ON/OFF 12,000/18,000,MW 10.2 LB/GAL,VIS 32, ROTATE 717',SLIDE 36' SERVICE RIG
	15:00 - 15:30	0.50	DRLPRO	07	A	P		
	15:30 - 21:00	5.50	DRLPRO	02	D	P		DRILL 7 7/8" PROD HOLE, ROTATE & SLIDE, F/8774' T/9047' ,273' @ 49'/HR WOB/12/25K, MM/116 RPM TD/60 RPM,PUMP #2,110 SPM,495 GPM, ON/OFF PUMP PRESS,2250 PSI/1970 PSI, PU/SO/ROT 265/135/180,TORQUE ON/OFF 15,000/19,000,MW 10.5 LB/GAL,VIS 37, ROTATE 273',SLIDE 0' PUMP SWEEP CIRC HOLE F/BIT TRIP
	21:00 - 22:00	1.00	DRLPRO	05	C	P		CHECK FLOW.POH, F/BIT #2(PUMP OUT OF HOLE,F9047' 7800')
	22:00 - 0:00	2.00	DRLPRO	06	A	P		CONT. TOH F/BIT # 2,L/D BIT #1 & DIR TOOLS
9/5/2011	0:00 - 3:30	3.50	DRLPRO	06	A	P		P/U HUNTING .17 STRAIGHT MM,M/U BIT #2 ( Q 506F W/6 x 16S JETS)SURF. TEST MM ( OK)
	3:30 - 4:00	0.50	DRLPRO	06	A	P		TIH TAG BRIDGE @ 8950'(BREAK CIRC @ 5000')
	4:00 - 8:00	4.00	DRLPRO	06	A	P		FILL PIPE CIRC OUT GAS,SHUT IN WELL DUE 350 PSI PRESS LOSS & 10 BBL PIT GAIN, 0 PSI SIDPP & 0 PSI SICP,CONT T/CIRC GAS OUT THRU CHOKE RASIE MW T/ 10.9 PPG( 20' T/ 25' FLARE)OPEN UP BOP,CHECK, FLOW NO FLOW
	8:00 - 9:30	1.50	DRLPRO	05	A	P		WASH & REAM F/8950' T/9047'
	9:30 - 10:00	0.50	DRLPRO	03	E	P		
	10:00 - 17:30	7.50	DRLPRO	02	B	P		DRILL 7 7/8" PROD HOLE, ROTATE F/9047' T/ 9440' ,393' @ 53'/HR WOB/12/25K, MM/84 RPM TD/50 RPM,PUMP #1,110 SPM,495 GPM, ON/OFF PUMP PRESS,2600 PSI/2300 PSI, PU/SO/ROT 235/135/180,TORQUE ON/OFF 19,000/17,000,MW 11.1 LB/GAL,VIS 40
	17:30 - 18:00	0.50	DRLPRO	07	A	P		SERVICE RIG
	18:00 - 20:30	2.50	DRLPRO	02	B	P		DRILL 7 7/8" PROD HOLE, ROTATE F/9440' T/ 9600'(TD PROD HOLE) ,160' @ 64'/HR WOB/12/25K, MM/84 RPM TD/50 RPM,PUMP #1,110 SPM,495 GPM, ON/OFF PUMP PRESS,2620 PSI/2340 PSI, PU/SO/ROT 235/135/180,TORQUE ON/OFF 19,000/17,000,MW 11.1 LB/GAL,VIS 40
	20:30 - 22:00	1.50	DRLPRO	05	C	P		CIRC & COND HOLE F/SHORT TRIP T/8 5/8" CSG SHOE
	22:00 - 0:00	2.00	DRLPRO	06	E	P		CHECK FLOW,TOH ( SHORT TRIP)
9/6/2011	0:00 - 5:00	5.00	DRLPRO	06	E	P		CONT T/SHORT TRIP T/8 5/8" CSG SHOE(PUMP OUT F/9600' T/8000'),TIH NO BRIDGES
	5:00 - 7:00	2.00	DRLPRO	05	C	P		CIRC & COND HOLE F/TOH F/LOGS( 5' T/ 10' FLARE ON BOTEMS UP GAS)

**US ROCKIES REGION**  
**Operation Summary Report**

Well: NBU 1021-2901CS YELLOW		Spud Conductor: 7/21/2011		Spud Date: 7/27/2011	
Project: UTAH-UINTAH		Site: NBU 1021-291 PAD		Rig Name No: H&P 311/311, PROPETRO 11/11	
Event: DRILLING		Start Date: 7/16/2011		End Date: 9/7/2011	
Active Datum: RKB @5,281.00usft (above Mean Sea Level)		UWI: NE/SE/0/10/S/21/E/29/0/0/26/PM/S/1984/E/0/418/0/0			

Date	Time Start-End	Duration (hr)	Phase	Code	Sub Code	P/U	MD From (usft)	Operation
9/7/2011	7:00 - 13:00	6.00	DRLPRO	06	B	P		CHECK FLOW,TOH F/LOGS(PUMP OUT F/9600' T/9135')
	13:00 - 13:30	0.50	DRLPRO	07	A	P		SERVICE RIG
	13:30 - 18:30	5.00	DRLPRO	11	D	P		HOLD SAFTEY MEEETING,R/U HALIBURTON LOGGING EQUIP,RUN TRIPLE COMBO OPEN HOLE LOGS F/9557' T/2156'(LOGGERS TD 9590',DRILLERS TD 9600'),R/D HALIBURTON LOGGING EQUIP.
	18:30 - 21:00	2.50	CSG	12	A	P		PULL WEAR BUSHING,HOLD SAFTEY MEETING,CHANGE OUT BAILS & ELEVATORS R/U FRANKS CASING EQUIP & LD/P/U MACHINE
	21:00 - 0:00	3.00	CSG	12	C	P		START T/ RUN SHOE,SHOE JNT & 225 JNTS 4 1/2" I-80 BTC 11.6# CSG W/THE SHOE SET @9590' & THE FLOAT @ 9546'(4 1/2" CSG SHOE @1974')
	0:00 - 4:30	4.50	CSG	12	C	P		CONT T/ RUN SHOE,SHOE JNT & 225 JNTS 4 1/2" I-80 BTC 11.6# CSG W/THE SHOE SET @9590' & THE FLOAT @ 9546'(F/1974' T/8700' CSG STUCK 8700')
	4:30 - 5:30	1.00	ALL	22	A	X		WORK STUCK CSG @ 8700',DISPLACE 200 BBLS 8.4 WATER IN ANNULUS,PIPE FREE
	5:30 - 6:30	1.00	CSG	12	C	P		CONT T/ RUN SHOE,SHOE JNT & 225 JNTS 4 1/2" I-80 BTC 11.6# CSG W/THE SHOE SET @9590' & THE FLOAT @ 9546,MARKER JNTS @ 4383' & 7313'(F/8700' T/9590')
	6:30 - 8:00	1.50	CSG	05	D	P		CIRC OUT 200 BBLS 8.4 WATER IN ANNULUS OUT THRU CHOKE (20' T/ 25' FLARE) OPEN UP WELL NO FLOW
	8:00 - 9:00	1.00	CSG	05	D	P		CONT T/CIRC OUT GAS & COND HOLE F/CEMENT THRU FLOWLINE(RIG DOWN CSG EQUIP)
	9:00 - 9:30	0.50	CSG	12	B	P		HOLD SAFTEY MEETING,INSTALL CEMENT HEAD,R/U BJ CEMNTING EQUIP.
	9:30 - 12:30	3.00	CSG	12	E	P		PRESSURE TEST 5000 10 MIN,PUMPED 5 BBL PRE FLUSH H2O, 16 BBLS SCAVENGER 10.0#,5.14YD, 20 SKS, 34GPS--168 BBLS LEAD,11.0 #,2.98 YD,317 SKS,19.49 GPS--319 BBLS TAIL, 14.3#,1.31YD,1365 SKS,GPS 5.90. DISPLACED 148 BBLS H2O W/CLAY-CARE ,FINAL LIFT PRESS 3150 PSI, BUMP PLUG T/3780 PSI,HELD FOR 5MIN.BLEED OFF FLOATS HELD--70 BBLS LEAD CEMENT T/SURF, TOP OF TAIL 3800',R/D BJ CEMENTING EQUIP
	12:30 - 13:30	1.00	CSG	14	A	P		NIPPLE DOWN BOP,SET 4 1/2" PROD CGS SLIPS W/100K ON SLIPS (RELEASE RIG @ 13:30)

**US ROCKIES REGION**  
**Operation Summary Report**

Well: NBU 1021-2901CS YELLOW		Spud Conductor: 7/21/2011		Spud Date: 7/27/2011	
Project: UTAH-UINTAH		Site: NBU 1021-29I PAD		Rig Name No: H&P 311/311, PROPETRO 11/11	
Event: DRILLING		Start Date: 7/16/2011		End Date: 9/7/2011	
Active Datum: RKB @5,281.00usft (above Mean Sea Level)		UWI: NE/SE/0/10/S/21/E/29/0/0/26/PM/S/1984/E/0/418/0/0			

Date	Time Start-End	Duration (hr)	Phase	Code	Sub Code	P/U	MD From (usft)	Operation
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13:30 - 13:30 0.00 CSG

CONDUCTOR CASING:  
Cond. Depth set:40'  
Cement sx used:20SKS

SPUD DATE/TIME:7/27/2011 12:00

SURFACE HOLE:  
Surface From depth:40'  
Surface To depth:210'  
Total SURFACE hours:20.50  
Surface Casing size:8 5/8"  
# of casing joints ran:50 JNTS  
Casing set MD:2153'  
# sx of cement:200/200/150  
Cement blend (ppg.):11.0/15.8/15.8  
Cement yield (ft3/sk):3.82/1.15/1.15  
# of bbls to surface:1  
Describe cement issues:NONE  
Describe hole issues:NONE

PRODUCTION:  
Rig Move/Skid start date/time:9/1/2011 0:00  
Rig Move/Skid finish date/time:9/1/2011 2:00  
Total MOVE hours:2.0  
Prod Rig Spud date/time:9/1/2011 15:00  
Rig Release date/time:9/7/2011 13:30  
Total SPUD to RR hours:142.5  
Planned depth MD9,574  
Planned depth TVD9,254  
Actual MD:9,600  
Actual TVD:9,246  
Open Wells \$:  
AFE \$:  
Open wells \$/ft:\$

PRODUCTION HOLE:  
Prod. From depth:2,181  
Prod. To depth:9,600  
Total PROD hours: 83.5  
Log Depth:9590  
Float Collar Top Depth:9546  
Production Casing size:4 1/2"  
# of casing joints ran:226  
Casing set MD:9,590.0  
# sx of cement:1,682  
Cement blend (ppg.):11.2/14.3  
Cement yield (ft3/sk):2.98/1.31  
Est. TOC (Lead & Tail) or 2 Stage :3800  
Describe cement issues:NONE  
Describe hole issues:NONE

DIRECTIONAL INFO:  
KOP:300  
Max angle:25.50  
Departure:1826.00



## US ROCKIES REGION

## Operation Summary Report

Well: NBU 1021-2901CS YELLOW		Spud Conductor: 7/21/2011		Spud Date: 7/27/2011				
Project: UTAH-UINTAH		Site: NBU 1021-291 PAD		Rig Name No: H&P 311/311, PROPETRO 11/11				
Event: DRILLING		Start Date: 7/16/2011		End Date: 9/7/2011				
Active Datum: RKB @5,281.00usft (above Mean Sea Level)		UWI: NE/SE/0/10/S/21/E/29/0/0/26/PM/S/1984/E/0/418/0/0						
Date	Time Start-End	Duration (hr)	Phase	Code	Sub Code	P/U	MD From (usft)	Operation
Max dogleg MD:4.24								

## 1 General

### 1.1 Customer Information

Company	US ROCKIES REGION
Representative	
Address	

### 1.2 Well/Wellbore Information

Well	NBU 1021-2901CS YELLOW	Wellbore No.	OH
Well Name	NBU 1021-2901CS	Wellbore Name	NBU 1021-2901CS
Report No.	1	Report Date	10/7/2011
Project	UTAH-UINTAH	Site	NBU 1021-2901 PAD
Rig Name/No.		Event	COMPLETION
Start Date	10/7/2011	End Date	10/20/2011
Spud Date	7/27/2011	Active Datum	RKB @5,281.00usft (above Mean Sea Level)
UWI	NE/SE/O/10/S/21/E/29/O/0/26/PM/S/1984/E/O/418/O/O		

### 1.3 General

Contractor	CASED HOLE SOLUTIONS	Job Method	PERFORATE	Supervisor	ED GUIDAC
Perforated Assembly	PRODUCTION CASING	Conveyed Method	WIRELINE		

### 1.4 Initial Conditions

Fluid Type		Fluid Density		Gross Interval	6,898.0 (usft)-9,144.0 (usft)	Start Date/Time	10/10/2011 12:00AM
Surface Press		Estimate Res Press		No. of Intervals	16	End Date/Time	10/10/2011 12:00AM
TVD Fluid Top		Fluid Head		Total Shots	0	Net Perforation Interval	28.00 (usft)
Hydrostatic Press		Press Difference		Avg Shot Density	0.00 (shot/ft)	Final Surface Pressure	
Balance Cond	NEUTRAL					Final Press Date	

### 1.5 Summary

## 2 Intervals

### 2.1 Perforated Interval

Date	Formation/ Reservoir	CCL@ (usft)	CCL-T S (usft)	MD Top (usft)	MD Base (usft)	Shot Density (shot/ft)	Misfires/ Add. Shot	Diameter (in)	Carr Type /Carr Manuf	Carr Size (in)	Phasing (°)	Charge Desc /Charge Manufacturer	Charge Weight (gram)	Reason	Misrun
10/10/2011 12:00AM	WASATCH/			6,898.0	6,899.0			0.360	EXP/	3.375	90.00			23.00 PRODUCTION	
														N	

## 2.1 Perforated Interval (Continued)

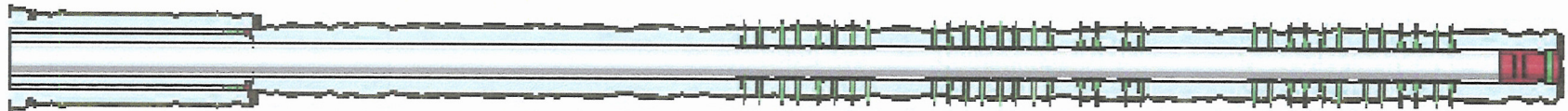
Date	Formation/ Reservoir	CCL@ (usft)	CCL-T S (usft)	MD Top (usft)	MD Base (usft)	Shot Density (shot/ft)	Misfires/ Add. Shot	Diamete r (in)	Carr Type /Carr Manuf	Carr Size (in)	Phasing (°)	Charge Desc /Charge Manufacturer	Charge Weight (gram)	Reason	Misrun
10/10/2011 12:00AM	WASATCH/			6,969.0	6,970.0			0.360	EXP/	3.375	90.00		23.00	PRODUCTIO N	
10/10/2011 12:00AM	WASATCH/			7,028.0	7,029.0			0.360	EXP/	3.375	90.00		23.00	PRODUCTIO N	
10/10/2011 12:00AM	WASATCH/			7,056.0	7,059.0			0.360	EXP/	3.375	90.00		23.00	PRODUCTIO N	
10/10/2011 12:00AM	MESAVERDE/			7,549.0	7,550.0			0.360	EXP/	3.375	90.00		23.00	PRODUCTIO N	
10/10/2011 12:00AM	MESAVERDE/			7,562.0	7,563.0			0.360	EXP/	3.375	90.00		23.00	PRODUCTIO N	
10/10/2011 12:00AM	MESAVERDE/			7,591.0	7,592.0			0.360	EXP/	3.375	90.00		23.00	PRODUCTIO N	
10/10/2011 12:00AM	MESAVERDE/			7,620.0	7,621.0			0.360	EXP/	3.375	90.00		23.00	PRODUCTIO N	
10/10/2011 12:00AM	MESAVERDE/			7,776.0	7,780.0			0.360	EXP/	3.375	90.00		23.00	PRODUCTIO N	
10/10/2011 12:00AM	MESAVERDE/			7,917.0	7,919.0			0.360	EXP/	3.375	90.00		23.00	PRODUCTIO N	
10/10/2011 12:00AM	MESAVERDE/			8,877.0	8,878.0			0.360	EXP/	3.375	90.00		23.00	PRODUCTIO N	
10/10/2011 12:00AM	MESAVERDE/			8,920.0	8,922.0			0.360	EXP/	3.375	90.00		23.00	PRODUCTIO N	
10/10/2011 12:00AM	MESAVERDE/			8,943.0	8,946.0			0.360	EXP/	3.375	90.00		23.00	PRODUCTIO N	
10/10/2011 12:00AM	MESAVERDE/			9,061.0	9,063.0			0.360	EXP/	3.375	90.00		23.00	PRODUCTIO N	
10/10/2011 12:00AM	MESAVERDE/			9,104.0	9,105.0			0.360	EXP/	3.375	90.00		23.00	PRODUCTIO N	

## 2.1 Perforated Interval (Continued)

Date	Formation/ Reservoir	CCL@ (usft)	CCL-T S (usft)	MD Top (usft)	MD Base (usft)	Shot Density (shot/ft)	Misfires/ Add. Shot	Diamete r (in)	Carr Type /Carr Manuf	Carr Size (in)	Phasing (°)	Charge Desc /Charge Manufacturer	Charge Weight (gram)	Reason	Misrun
10/10/201 1 12:00AM	MESAVERDE/			9,141.0	9,144.0			0.360	EXP/	3.375	90.00		23.00	PRODUCTIO N	

## 3 Plots

## 3.1 Wellbore Schematic





**US ROCKIES REGION**  
**Operation Summary Report**

Well: NBU 1021-2901CS YELLOW	Spud Conductor: 7/21/2011	Spud Date: 7/27/2011
Project: UTAH-UINTAH	Site: NBU 1021-29I PAD	Rig Name No: GWS 1/1
Event: COMPLETION	Start Date: 10/7/2011	End Date: 10/20/2011
Active Datum: RKB @5,281.00usft (above Mean Sea Level)		UWI: NE/SE/0/10/SI/21/E/29/0/0/26/PM/S/1984/E/0/418/0/0

Date	Time Start-End	Duration (hr)	Phase	Code	Sub Code	P/U	MD From (usft)	Operation
10/6/2011	7:00 - 11:00	4.00	COMP	33		P		FILL SURFACE CSG. MIRU B&C QUICK TEST. PSI TEST T/ 1000 PSI. HELD FOR 15 MIN LOST 25 PSI. PSI TEST T/ 3500 PSI. HELD FOR 15 MIN LOST 22 PSI. 1ST PSI TEST T/ 7000 PSI. HELD FOR 30 MIN LOST 72 PSI. BLEED OFF PSI. MOVE T/ NEXT WELL.SWFW.
10/10/2011	12:00 - 15:00	3.00	COMP	37		P		PERF STG 1)PU 3 1/8 EXP GUN, 23 GM, .36 HOLE SIZE. 90 DEG PHASING. RIH PERF AS PER PERF DESIGN. POOH.SWI

**US ROCKIES REGION**  
**Operation Summary Report**

Well: NBU 1021-2901CS YELLOW		Spud Conductor: 7/21/2011	Spud Date: 7/27/2011
Project: UTAH-UINTAH	Site: NBU 1021-29I PAD		Rig Name No: GWS 1/1
Event: COMPLETION	Start Date: 10/7/2011	End Date: 10/20/2011	
Active Datum: RKB @5,281.00usft (above Mean Sea Level)		UWI: NE/SE/0/10/S/21/E/29/0/0/26/PM/S/1984/E/0/418/0/0	

Date	Time Start-End	Duration (hr)	Phase	Code	Sub Code	P/U	MD From (usft)	Operation
10/13/2011	7:00 - 17:00	10.00	COMP	36	B	P		<p>4FRAC STG 1)WHP 1700 PSI, BRK 4664 PSI @ 4.5 BPM. ISIP 2805 PSI, FG .75 CALC HOLES OPEN @ 50. BPM @ 4933 PSI = 100% HOLES OPEN. ISIP 2913 PSI, FG .76, NPI 108 PSI. MP 6232 PSI, MR 50.8 BPM, AP 4931 PSI, AR 50.4 BPM X-OVER FOR W L</p> <p>PERF STG 2)PU 4 1/2 8K HAL CBP &amp; 3 1/8 EXP GUN, 23 GM, .36 HOLE SIZE. 90 DEG PHASING. RIH SET CBP @ 8976' P/U PERF AS PER PERF DESIGN. POOH. X-OVER FOR FRAC CREW</p> <p>FRAC STG 2)WHP 960 PSI, BRK 4911 PSI @ 4.7 BPM. ISIP 2751 PSI, FG .75 CALC HOLES OPEN @ 48.1 BPM @ 6211 PSI = 77% HOLES OPEN. ISIP 2992 PSI, FG .77, NPI 241 PSI. MP 6473 PSI, MR 50.3 BPM, AP 6040 PSI, AR 48.7 BPM X-OVER FOR W L</p> <p>PERF STG 3)PU 4 1/2 8K HAL CBP &amp; 3 1/8 EXP GUN, 23 GM, .36 HOLE SIZE. 90 DEG PHASING. RIH SET CBP @ 7949' P/U PERF AS PER PERF DESIGN. POOH. X-OVER FOR FRAC CREW</p> <p>FRAC STG 3)WHP 400 PSI, BRK 2682 PSI @ 4.3 BPM. ISIP 1956 PSI, FG .69 CALC HOLES OPEN @ 50.4 BPM @ 5214 PSI = 83% HOLES OPEN. ISIP 2349 PSI, FG .74, NPI 393 PSI. MP 5618 PSI, MR 50.8 BPM, AP 4968 PSI, AR 50.4 BPM X-OVER FOR W L</p> <p>PERF STG 4)PU 4 1/2 8K HAL CBP &amp; 3 1/8 EXP GUN, 23 GM, .36 HOLE SIZE. 90 DEG PHASING. RIH SET CBP @ 7651' P/U PERF AS PER PERF DESIGN. POOH.SWIFN</p>

US ROCKIES REGION

Operation Summary Report

Well: NBU 1021-2901CS YELLOW

Spud Conductor: 7/21/2011

Spud Date: 7/27/2011

Project: UTAH-UINTAH

Site: NBU 1021-29I PAD

Rig Name No: GWS 1/1

Event: COMPLETION

Start Date: 10/7/2011

End Date: 10/20/2011

Active Datum: RKB @5,281.00usft (above Mean Sea Level)

UWI: NE/SE/0/10/S/21/E/29/0/0/26/PM/S/1984/E/0/418/0/0

Date	Time Start-End	Duration (hr)	Phase	Code	Sub Code	P/U	MD From (usft)	Operation
10/14/2011	7:00 - 15:00	8.00	COMP	36	B	P		<p>FRAC STG 4)WHP 645 PSI, BRK 3114 PSI @ 4.2 BPM. ISIP 1633 PSI, FG .65  CALC HOLES OPEN @ 50.4 BPM @ 4350 PSI = 100% HOLES OPEN.  ISIP 2493 PSI, FG .77 NPI 860 PSI.  MP 5547 PSI, MR 53.9 BPM, AP 4675 PSI, AR 49.0 BPM  X-OVER FOR WL</p> <p>PERF STG 5)PU 4 1/2 8K HAL CBP &amp; 3 1/8 EXP GUN, 23 GM, .36 HOLE SIZE. 90 DEG PHASING. RIH SET CBP @ 7549' P/U PERF AS PER PERF DESIGN. POOH.  X-OVER FOR FRAC CREW</p> <p>FRAC STG 5)WHP 160 PSI, BRK 2527 PSI @ 4.6 BPM. ISIP 1512 PSI, FG .66  CALC HOLES OPEN @ 49.6 BPM @ 5426 PSI = 68% HOLES OPEN.  ISIP 2985 PSI, FG .87 NPI 1473 PSI.  MP 5931 PSI, MR 50.3 BPM, AP 5250 PSI, AR 50.1 BPM  X-OVER FOR WL</p> <p>PU 4 1/2 HAL CBP RIH SET KILL PLUG @ 6848 POOH RD W.L.</p> <p>TOTAL SAND = 100,367 #  TOTAL TOTAL CLFL = 4893 BBLS  HSM, SLIPS, TRIPS &amp; FALLS, ROTARY LOOSE CLOTHING</p>
10/19/2011	7:00 - 7:15	0.25	COMP	48		P		

## US ROCKIES REGION

## Operation Summary Report

Well: NBU 1021-2901CS YELLOW

Spud Conductor: 7/21/2011

Spud Date: 7/27/2011

Project: UTAH-UINTAH

Site: NBU 1021-29I PAD

Rig Name No: GWS 1/1

Event: COMPLETION

Start Date: 10/7/2011

End Date: 10/20/2011

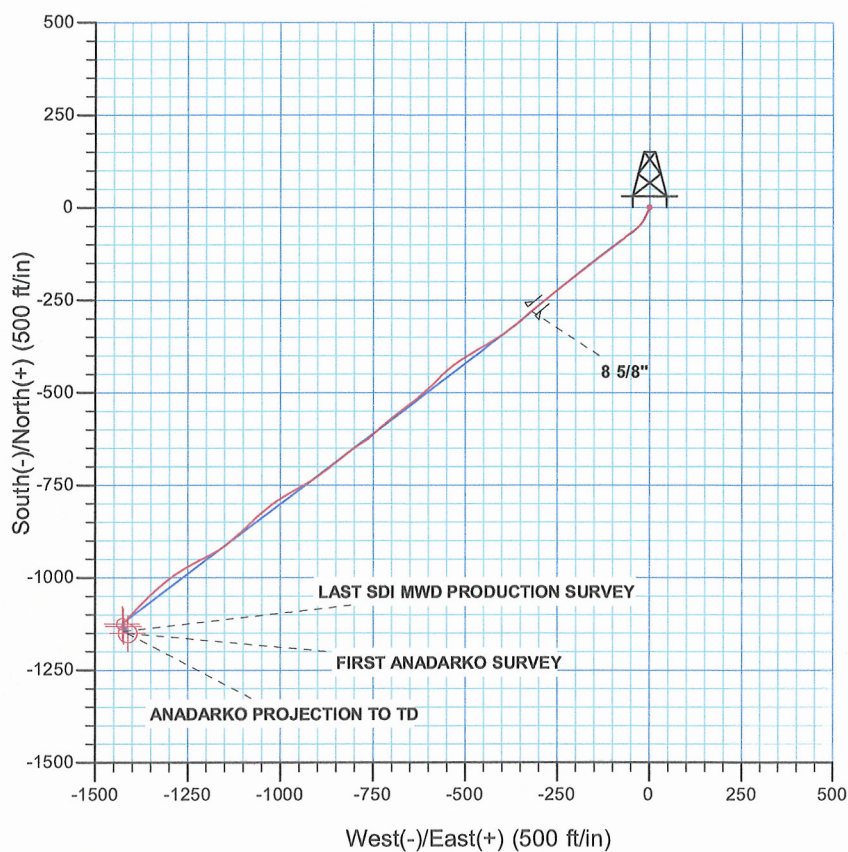
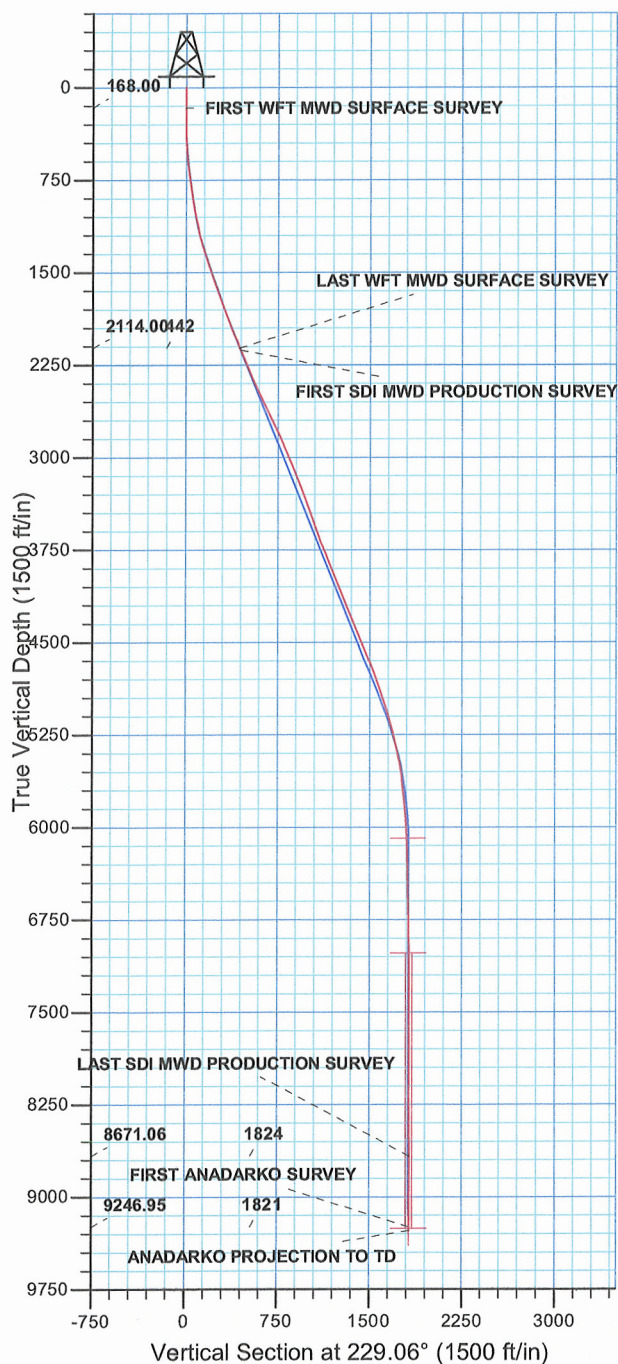
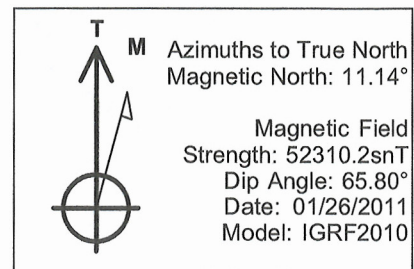
Active Datum: RKB @5,281.00usft (above Mean Sea Level)

UWI: NE/SE/0/10/S/21/E/29/0/0/26/PM/S/1984/E/0/418/0/0

Date	Time Start-End	Duration (hr)	Phase	Code	Sub Code	P/U	MD From (usft)	Operation
	7:15 - 17:00	9.75	COMP	31	I	P		<p>MIRU, SPOT EQUIP, N/D WH, N/U 5K BOP, R/U FLOOR &amp; TBG EQUIP, R/U HAL 9000 &amp; FLOWLINE TO PIT, SPOT TBG TRAILER, P/U TBG, REMOVE THREAD PROTECTORS, TALLY &amp; DRIFT TBG TO KILL PLUG, R/U P/S, FILL TBG, BREAK CIRC, PRESS TEST BOP TO 3,000 PSI FOR 15 MIN, LOST 0 PSI, SURFACE CSG VALVE OPEN &amp; LOCKED, D/O 5 PLUGS.</p> <p>C/O 15' SAND, TAG 1ST PLUG @ 6,848' DRL PLUG IN 9 MIN. 700 PSI INCREASE RIH, CSG PRESS 0 PSI.</p> <p>C/O 30' SAND, TAG 2ND PLUG @ 7,089' DRL PLUG IN 10 MIN. 400 PSI INCREASE RIH, CSG PRESS 100 PSI.</p> <p>C/O 20' SAND, TAG 3RD PLUG @ 7,647' DRL PLUG IN 9 MIN. 300 PSI INCREASE RIH, CSG PRESS 100 PSI.</p> <p>C/O 20' SAND, TAG 4TH PLUG @ 7,956' DRL PLUG IN 8 MIN. 250 PSI INCREASE RIH, CSG PRESS 150 PSI.</p> <p>C/O 30' SAND, TAG 5TH PLUG @ 8,976' DRL PLUG IN 9 MIN. 700 PSI INCREASE RIH, CSG PRESS 200 PSI.</p> <p>PBTD @ 9,545', BTM PERF @ 9,144', SET P/S BACK, RIH TO 9,306' NO TAG, 162' PAST BTM PERF W/ 293 JTS 2 3/8" L-80 TBG, LD 15 JTS, PU &amp; STRIP IN TBG HANGER &amp; LAND TBG W/ 278 JTS 2 3/8" L-80, EOT 8,829.35', REMOVE LANDING JT &amp; INSTAL 8' PUP JT &amp; TIW VALVE IN TOP OF HANGER, WILL PUMP BIT OFF IN AM, SWI, SDFN.</p> <p>HSM, SLIPS, TRIPS &amp; FALLS, RIGGING UP &amp; DOWN</p> <p>SICP 1,600 PSI, RD POWER SWIVEL, FLOOR &amp; TBG EQUIP, ND BOPS, NU WH, DROP BALL TO SHEAR OFF BIT W/ 3,000 PSI, LET BIT FALL FOR 20 MIN.</p> <p>TURN OVER TO FLOW BACK CREW, RD &amp; MOVE TO NEXT WELL ON PAD.</p> <p>KB= 19'</p> <p>4 1/16" WEATHERFORD HANGER= .83' TBG DELIVERED 314 JTS</p> <p>278 JTS 2 3/8" L-80 = 8,807.32'</p> <p>TBG USED 278 JTS</p> <p>POBS= 2.20'</p> <p>TBG RETURNED 36 JTS</p> <p>EOT @ 8,829.35' 1</p> <p>JT W/ BAD THREADS</p> <p>TWTR= 4,893 BBLS</p> <p>TWR= 1,400 BBLS</p> <p>TWLTR= 3,493 BBLS</p>
10/20/2011	7:00 - 7:15	0.25	COMP	48		P		
	7:15 - 11:00	3.75	COMP	30	A	P		



WELL DETAILS: NBU 1021-29O1CS					
GL 5253' & KB 25' @ 5278.00ft (HP 311)					
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.00	0.00	14498959.63	2042288.13	39° 55' 0.336 N	109° 34' 0.512 W



PROJECT DETAILS: UTAH - UTM (feet), NAD27, Zone 12N	
Geodetic System:	Universal Transverse Mercator (US Survey Feet)
Datum:	NAD 1927 (NADCON CONUS)
Ellipsoid:	Clarke 1866
Zone:	Zone 12N (114 W to 108 W)
Location:	SECTION 29 T10S R21E
System Datum:	Mean Sea Level



**Scientific Drilling**  
Rocky Mountain Operations

## **US ROCKIES REGION PLANNING**

**UTAH - UTM (feet), NAD27, Zone 12N**

**NBU 1021-29I PAD**

**NBU 1021-29O1CS**

**OH**

**Design: OH**

## **Standard Survey Report**

**12 September, 2011**

**Anadarko**   
Petroleum Corporation

<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well NBU 1021-2901CS
<b>Project:</b>	UTAH - UTM (feet), NAD27, Zone 12N	<b>TVD Reference:</b>	GL 5253' & KB 25' @ 5278.00ft (HP 311)
<b>Site:</b>	NBU 1021-29I PAD	<b>MD Reference:</b>	GL 5253' & KB 25' @ 5278.00ft (HP 311)
<b>Well:</b>	NBU 1021-2901CS	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	OH	<b>Database:</b>	EDM5000-RobertS-Local

<b>Project</b>	UTAH - UTM (feet), NAD27, Zone 12N		
<b>Map System:</b>	Universal Transverse Mercator (US Survey Feet)	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	NAD 1927 (NADCON CONUS)		
<b>Map Zone:</b>	Zone 12N (114 W to 108 W)		

Site		NBU 1021-29I PAD, SECTION 29 T10S R21E			
Site Position:		Northing:	14,498,964.15 usft	Latitude:	39° 55' 0.379 N
From:	Lat/Long	Easting:	2,042,297.02 usft	Longitude:	109° 34' 0.397 W
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in	Grid Convergence:	0.92 °

Well	NBU 1021-2901CS, 1984 FSL 418 FEL					
Well Position	+N/-S	0.00 ft	Northing:	14,498,959.63 usft	Latitude:	39° 55' 0.336 N
	+E/-W	0.00 ft	Easting:	2,042,288.12 usft	Longitude:	109° 34' 0.512 W
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:	5,253.00 ft

<b>Wellbore</b>	OH				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	01/26/11	11.14	65.80	52,310

<b>Design</b>	OH				
<b>Audit Notes:</b>					
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>	
	0.00	0.00	0.00	229.06	

<b>Survey Program</b>	Date 09/12/11				
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
21.00	2,181.00	Survey #1 WFT MWD SURFACE (OH)	MWD	MWD - Standard	
2,200.00	8,994.00	Survey #2 SDI MWD PRODUCTION (OH)	SDI MWD	SDI MWD - Standard ver 1.0.1	
9,570.00	9,600.00	Survey #3 ANADARKO SURVEY (OH)	MWD	MWD - Standard	

<b>Survey</b>									
<b>Measured Depth (ft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Vertical Section (ft)</b>	<b>Dogleg Rate (°/100ft)</b>	<b>Build Rate (°/100ft)</b>	<b>Turn Rate (°/100ft)</b>
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21.00	0.00	0.00	21.00	0.00	0.00	0.00	0.00	0.00	0.00
168.00	0.27	322.51	168.00	0.27	-0.21	-0.02	0.18	0.18	0.00
<b>FIRST WFT MWD SURFACE SURVEY</b>									
258.00	0.21	198.75	258.00	0.29	-0.39	0.11	0.47	-0.07	-137.51
348.00	1.93	179.17	347.98	-1.38	-0.42	1.23	1.93	1.91	-21.76
431.00	3.13	204.50	430.90	-4.84	-1.34	4.19	1.94	1.45	30.52
521.00	4.94	203.50	520.67	-10.63	-3.91	9.92	2.01	2.01	-1.11
611.00	6.31	202.25	610.24	-18.77	-7.33	17.83	1.53	1.52	-1.39

**Company:** US ROCKIES REGION PLANNING  
**Project:** UTAH - UTM (feet), NAD27, Zone 12N  
**Site:** NBU 1021-29I PAD  
**Well:** NBU 1021-29O1CS  
**Wellbore:** OH  
**Design:** OH

**Local Co-ordinate Reference:** Well NBU 1021-29O1CS  
**TVD Reference:** GL 5253' & KB 25' @ 5278.00ft (HP 311)  
**MD Reference:** GL 5253' & KB 25' @ 5278.00ft (HP 311)  
**North Reference:** True  
**Survey Calculation Method:** Minimum Curvature  
**Database:** EDM5000-RobertS-Local

**Survey**

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
701.00	6.88	205.50	699.64	-28.21	-11.52	27.19	0.76	0.63	3.61
791.00	7.69	213.25	788.92	-38.11	-17.14	37.92	1.41	0.90	8.61
881.00	8.63	221.75	878.01	-48.18	-24.94	50.41	1.70	1.04	9.44
971.00	9.81	227.62	966.85	-58.39	-35.10	64.78	1.68	1.31	6.52
1,061.00	11.50	234.50	1,055.29	-68.77	-48.07	81.37	2.35	1.88	7.64
1,151.00	13.44	234.37	1,143.17	-80.07	-63.88	100.72	2.16	2.16	-0.14
1,241.00	15.48	233.34	1,230.31	-93.34	-82.01	123.12	2.28	2.27	-1.14
1,331.00	16.69	232.62	1,316.79	-108.36	-101.92	147.99	1.36	1.34	-0.80
1,421.00	18.94	232.62	1,402.47	-125.07	-123.80	175.47	2.50	2.50	0.00
1,511.00	20.31	232.87	1,487.24	-143.37	-147.86	205.64	1.53	1.52	0.28
1,601.00	19.63	231.25	1,571.82	-162.26	-172.10	236.33	0.97	-0.76	-1.80
1,691.00	19.75	231.50	1,656.56	-181.19	-195.79	266.63	0.16	0.13	0.28
1,781.00	19.56	231.75	1,741.32	-199.98	-219.52	296.87	0.23	-0.21	0.28
1,871.00	20.25	231.50	1,825.94	-219.01	-243.55	327.48	0.77	0.77	-0.28
1,961.00	21.39	230.75	1,910.06	-239.09	-268.44	359.45	1.30	1.27	-0.83
2,051.00	22.38	230.37	1,993.58	-260.40	-294.35	392.98	1.11	1.10	-0.42
2,121.00	22.11	229.75	2,058.37	-277.41	-314.67	419.48	0.51	-0.39	-0.89
2,181.00	21.88	229.22	2,114.00	-292.01	-331.75	441.95	0.51	-0.38	-0.88
<b>LAST WFT MWD SURFACE SURVEY</b>									
2,200.00	21.98	227.54	2,131.62	-296.72	-337.06	449.04	3.34	0.53	-8.84
<b>FIRST SDI MWD PRODUCTION SURVEY</b>									
2,294.00	22.77	231.40	2,218.55	-319.95	-364.25	484.81	1.77	0.84	4.11
2,389.00	25.15	236.68	2,305.37	-342.51	-395.50	523.19	3.37	2.51	5.56
2,483.00	24.89	239.05	2,390.55	-363.66	-429.15	562.47	1.10	-0.28	2.52
2,577.00	25.50	240.02	2,475.61	-383.94	-463.65	601.82	0.78	0.65	1.03
2,672.00	26.64	238.87	2,560.94	-405.17	-499.59	642.89	1.31	1.20	-1.21
2,766.00	25.15	230.52	2,645.53	-428.78	-533.06	683.64	4.19	-1.59	-8.88
2,860.00	26.05	226.71	2,730.31	-455.63	-563.51	724.23	2.00	0.96	-4.05
2,955.00	22.60	228.41	2,816.86	-482.06	-592.35	763.34	3.71	-3.63	1.79
3,049.00	22.25	226.74	2,903.75	-506.25	-618.82	799.18	0.77	-0.37	-1.78
3,143.00	23.21	233.78	2,990.47	-529.39	-646.73	835.43	3.07	1.02	7.49
3,238.00	21.02	231.84	3,078.47	-550.98	-675.23	871.11	2.43	-2.31	-2.04
3,332.00	22.95	232.11	3,165.64	-572.66	-702.95	906.25	2.06	2.05	0.29
3,426.00	21.10	227.54	3,252.78	-595.34	-729.90	941.47	2.68	-1.97	-4.86
3,521.00	19.79	227.80	3,341.79	-617.68	-754.43	974.65	1.38	-1.38	0.27
3,615.00	19.26	236.41	3,430.40	-636.96	-779.14	1,005.94	3.11	-0.56	9.16
3,709.00	20.31	234.39	3,518.86	-655.03	-805.32	1,037.56	1.33	1.12	-2.15
3,804.00	19.79	232.55	3,608.10	-674.41	-831.49	1,070.03	0.86	-0.55	-1.94
3,898.00	22.25	229.47	3,695.84	-695.66	-857.66	1,103.71	2.87	2.62	-3.28
3,993.00	23.39	234.13	3,783.41	-718.40	-886.61	1,140.49	2.25	1.20	4.91
4,087.00	22.25	238.43	3,870.06	-738.65	-916.90	1,176.63	2.15	-1.21	4.57
4,181.00	21.90	240.37	3,957.17	-756.63	-947.30	1,211.38	0.86	-0.37	2.06
4,276.00	22.16	238.87	4,045.23	-774.65	-978.04	1,246.41	0.65	0.27	-1.58
4,370.00	22.42	236.32	4,132.21	-793.76	-1,008.13	1,281.66	1.07	0.28	-2.71

**Company:** US ROCKIES REGION PLANNING  
**Project:** UTAH - UTM (feet), NAD27, Zone 12N  
**Site:** NBU 1021-29I PAD  
**Well:** NBU 1021-29O1CS  
**Wellbore:** OH  
**Design:** OH

**Local Co-ordinate Reference:** Well NBU 1021-29O1CS  
**TVD Reference:** GL 5253' & KB 25' @ 5278.00ft (HP 311)  
**MD Reference:** GL 5253' & KB 25' @ 5278.00ft (HP 311)  
**North Reference:** True  
**Survey Calculation Method:** Minimum Curvature  
**Database:** EDM5000-RobertS-Local

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
4,464.00	22.16	232.72	4,219.19	-814.44	-1,037.15	1,317.14	1.48	-0.28	-3.83
4,559.00	22.86	226.57	4,306.96	-837.98	-1,064.81	1,353.46	2.58	0.74	-6.47
4,653.00	24.18	226.13	4,393.15	-863.88	-1,091.95	1,390.93	1.42	1.40	-0.47
4,748.00	21.19	225.69	4,480.79	-889.36	-1,118.27	1,427.51	3.15	-3.15	-0.46
4,842.00	21.63	231.84	4,568.32	-911.94	-1,144.05	1,461.78	2.43	0.47	6.54
4,936.00	22.86	241.86	4,655.35	-931.26	-1,173.79	1,496.90	4.24	1.31	10.66
5,031.00	22.07	243.09	4,743.14	-948.04	-1,205.98	1,532.21	0.97	-0.83	1.29
5,125.00	20.05	240.72	4,830.86	-963.91	-1,235.78	1,565.13	2.33	-2.15	-2.52
5,219.00	19.26	238.96	4,919.38	-979.79	-1,263.12	1,596.18	1.05	-0.84	-1.87
5,313.00	17.15	236.50	5,008.67	-995.44	-1,287.96	1,625.20	2.39	-2.24	-2.62
5,408.00	16.80	230.26	5,099.54	-1,011.94	-1,310.20	1,652.82	1.95	-0.37	-6.57
5,502.00	14.95	228.77	5,189.95	-1,028.62	-1,329.77	1,678.53	2.02	-1.97	-1.59
5,596.00	13.54	228.04	5,281.06	-1,044.25	-1,346.81	1,701.64	1.66	-1.50	-2.90
5,690.00	11.52	227.80	5,372.82	-1,058.20	-1,361.69	1,722.02	2.19	-2.15	1.87
5,785.00	9.32	224.20	5,466.25	-1,070.09	-1,374.08	1,739.17	2.41	-2.32	-3.79
5,879.00	8.35	222.35	5,559.13	-1,080.59	-1,383.98	1,753.53	1.08	-1.03	-1.97
5,974.00	7.65	221.73	5,653.21	-1,090.40	-1,392.84	1,766.65	0.74	-0.74	-0.65
6,068.00	6.40	227.44	5,746.50	-1,098.62	-1,400.86	1,778.10	1.52	-1.33	6.07
6,163.00	5.28	213.82	5,841.01	-1,105.83	-1,407.20	1,787.61	1.87	-1.18	-14.34
6,257.00	3.96	223.14	5,934.70	-1,111.79	-1,411.82	1,795.01	1.61	-1.40	9.91
6,351.00	2.81	231.84	6,028.54	-1,115.58	-1,415.85	1,800.54	1.34	-1.22	9.26
6,446.00	2.37	211.36	6,123.44	-1,118.70	-1,418.71	1,804.74	1.07	-0.46	-21.56
6,540.00	1.41	222.88	6,217.39	-1,121.21	-1,420.51	1,807.74	1.09	-1.02	12.26
6,635.00	1.41	207.41	6,312.36	-1,123.10	-1,421.84	1,809.99	0.40	0.00	-16.28
6,729.00	1.49	205.12	6,406.33	-1,125.24	-1,422.89	1,812.18	0.11	0.09	-2.44
6,823.00	0.62	258.82	6,500.32	-1,126.44	-1,423.91	1,813.74	1.31	-0.93	57.13
6,918.00	0.79	200.99	6,595.31	-1,127.15	-1,424.65	1,814.76	0.73	0.18	-60.87
7,012.00	0.97	200.99	6,689.30	-1,128.50	-1,425.16	1,816.03	0.19	0.19	0.00
7,107.00	0.97	200.73	6,784.29	-1,130.00	-1,425.74	1,817.45	0.00	0.00	-0.27
7,201.00	0.97	189.04	6,878.27	-1,131.53	-1,426.14	1,818.76	0.21	0.00	-12.44
7,295.00	1.32	173.31	6,972.25	-1,133.39	-1,426.14	1,819.98	0.50	0.37	-16.73
7,390.00	1.49	171.55	7,067.23	-1,135.70	-1,425.83	1,821.26	0.18	0.18	-1.85
7,484.00	1.49	166.63	7,161.19	-1,138.10	-1,425.37	1,822.48	0.14	0.00	-5.23
7,578.00	0.75	121.93	7,255.18	-1,139.61	-1,424.57	1,822.87	1.16	-0.79	-47.55
7,673.00	0.97	140.96	7,350.17	-1,140.57	-1,423.53	1,822.71	0.38	0.23	20.03
7,767.00	1.41	143.86	7,444.15	-1,142.12	-1,422.35	1,822.83	0.47	0.47	3.09
7,862.00	1.41	145.62	7,539.12	-1,144.03	-1,421.00	1,823.06	0.05	0.00	1.85
7,956.00	0.46	350.67	7,633.11	-1,144.61	-1,420.41	1,823.00	1.95	-1.01	-164.84
8,050.00	1.04	352.86	7,727.10	-1,143.39	-1,420.57	1,822.33	0.62	0.62	2.33
8,145.00	0.53	351.29	7,822.09	-1,142.10	-1,420.75	1,821.61	0.54	-0.54	-1.65
8,239.00	0.53	264.27	7,916.09	-1,141.72	-1,421.25	1,821.74	0.78	0.00	-92.57
8,333.00	0.26	341.62	8,010.09	-1,141.56	-1,421.75	1,822.01	0.57	-0.29	82.29
8,428.00	0.35	326.24	8,105.09	-1,141.11	-1,421.98	1,821.89	0.13	0.09	-16.19



**Company:** US ROCKIES REGION PLANNING  
**Project:** UTAH - UTM (feet), NAD27, Zone 12N  
**Site:** NBU 1021-29I PAD  
**Well:** NBU 1021-29O1CS  
**Wellbore:** OH  
**Design:** OH

**Local Co-ordinate Reference:** Well NBU 1021-29O1CS  
**TVD Reference:** GL 5253' & KB 25' @ 5278.00ft (HP 311)  
**MD Reference:** GL 5253' & KB 25' @ 5278.00ft (HP 311)  
**North Reference:** True  
**Survey Calculation Method:** Minimum Curvature  
**Database:** EDM5000-RobertS-Local

**Survey**

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
8,522.00	0.26	258.47	8,199.09	-1,140.91	-1,422.34	1,822.04	0.37	-0.10	-72.10
8,616.00	0.18	236.24	8,293.08	-1,141.04	-1,422.68	1,822.37	0.12	-0.09	-23.65
8,711.00	0.44	177.26	8,388.08	-1,141.49	-1,422.78	1,822.75	0.40	0.27	-62.08
8,805.00	0.79	171.46	8,482.08	-1,142.49	-1,422.67	1,823.32	0.38	0.37	-6.17
8,899.00	0.70	175.77	8,576.07	-1,143.70	-1,422.53	1,824.01	0.11	-0.10	4.59
8,994.00	0.70	152.92	8,671.06	-1,144.80	-1,422.22	1,824.49	0.29	0.00	-24.05
<b>LAST SDI MWD PRODUCTION SURVEY</b>									
9,570.00	1.60	107.10	9,246.95	-1,150.29	-1,412.94	1,821.08	0.21	0.16	-7.95
<b>FIRST ANADARKO SURVEY</b>									
9,600.00	1.60	107.10	9,276.94	-1,150.54	-1,412.13	1,820.63	0.00	0.00	0.00
<b>ANADARKO PROJECTION TO TD</b>									

**Design Annotations**

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
168.00	168.00	0.27	-0.21	FIRST WFT MWD SURFACE SURVEY
2,181.00	2,114.00	-292.01	-331.75	LAST WFT MWD SURFACE SURVEY

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_



**Scientific Drilling**  
Rocky Mountain Operations

## **US ROCKIES REGION PLANNING**

**UTAH - UTM (feet), NAD27, Zone 12N**

**NBU 1021-29I PAD**

**NBU 1021-29O1CS**

**OH**

**Design: OH**

## **Survey Report - Geographic**

**12 September, 2011**

**Anadarko**   
Petroleum Corporation

<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well NBU 1021-2901CS
<b>Project:</b>	UTAH - UTM (feet), NAD27, Zone 12N	<b>TVD Reference:</b>	GL 5253' & KB 25' @ 5278.00ft (HP 311)
<b>Site:</b>	NBU 1021-29I PAD	<b>MD Reference:</b>	GL 5253' & KB 25' @ 5278.00ft (HP 311)
<b>Well:</b>	NBU 1021-2901CS	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	OH	<b>Database:</b>	EDM5000-RobertS-Local

<b>Project</b>	UTAH - UTM (feet), NAD27, Zone 12N		
<b>Map System:</b>	Universal Transverse Mercator (US Survey Feet)	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	NAD 1927 (NADCON CONUS)		
<b>Map Zone:</b>	Zone 12N (114 W to 108 W)		

<b>Site</b>	NBU 1021-29I PAD, SECTION 29 T10S R21E			
<b>Site Position:</b>		<b>Northing:</b>	14,498,964.15 usft	<b>Latitude:</b> 39° 55' 0.379 N
<b>From:</b>	Lat/Long	<b>Easting:</b>	2,042,297.02 usft	<b>Longitude:</b> 109° 34' 0.397 W
<b>Position Uncertainty:</b>	0.00 ft	<b>Slot Radius:</b>	13.200 in	<b>Grid Convergence:</b> 0.92 °

<b>Well</b>	NBU 1021-2901CS, 1984 FSL 418 FEL			
<b>Well Position</b>	+N/-S	0.00 ft	<b>Northing:</b> 14,498,959.63 usft	<b>Latitude:</b> 39° 55' 0.336 N
	+E/-W	0.00 ft	<b>Easting:</b> 2,042,288.12 usft	<b>Longitude:</b> 109° 34' 0.512 W
<b>Position Uncertainty</b>		0.00 ft	<b>Wellhead Elevation:</b> ft	<b>Ground Level:</b> 5,253.00 ft

<b>Wellbore</b>	OH				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	01/26/11	11.14	65.80	52,310

<b>Design</b>	OH				
<b>Audit Notes:</b>					
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>	
	0.00	0.00	0.00	229.06	

<b>Survey Program</b>	<b>Date</b> 09/12/11				
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
21.00	2,181.00	Survey #1 WFT MWD SURFACE (OH)	MWD	MWD - Standard	
2,200.00	8,994.00	Survey #2 SDI MWD PRODUCTION (OH)	SDI MWD	SDI MWD - Standard ver 1.0.1	
9,570.00	9,600.00	Survey #3 ANADARKO SURVEY (OH)	MWD	MWD - Standard	

<b>Survey</b>									
<b>Measured Depth (ft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Map Northing (usft)</b>	<b>Map Easting (usft)</b>	<b>Latitude</b>	<b>Longitude</b>
0.00	0.00	0.00	0.00	0.00	0.00	14,498,959.63	2,042,288.12	39° 55' 0.336 N	109° 34' 0.512 W
21.00	0.00	0.00	21.00	0.00	0.00	14,498,959.63	2,042,288.12	39° 55' 0.336 N	109° 34' 0.512 W
168.00	0.27	322.51	168.00	0.27	-0.21	14,498,959.90	2,042,287.91	39° 55' 0.339 N	109° 34' 0.515 W
<b>FIRST WFT MWD SURFACE SURVEY</b>									
258.00	0.21	198.75	258.00	0.29	-0.39	14,498,959.91	2,042,287.72	39° 55' 0.339 N	109° 34' 0.517 W
348.00	1.93	179.17	347.98	-1.38	-0.42	14,498,958.24	2,042,287.72	39° 55' 0.322 N	109° 34' 0.518 W
431.00	3.13	204.50	430.90	-4.84	-1.34	14,498,954.77	2,042,286.86	39° 55' 0.288 N	109° 34' 0.530 W
521.00	4.94	203.50	520.67	-10.63	-3.91	14,498,948.94	2,042,284.38	39° 55' 0.231 N	109° 34' 0.563 W
611.00	6.31	202.25	610.24	-18.77	-7.33	14,498,940.75	2,042,281.10	39° 55' 0.151 N	109° 34' 0.606 W
701.00	6.88	205.50	699.64	-28.21	-11.52	14,498,931.24	2,042,277.06	39° 55' 0.057 N	109° 34' 0.660 W

**Company:** US ROCKIES REGION PLANNING  
**Project:** UTAH - UTM (feet), NAD27, Zone 12N  
**Site:** NBU 1021-29I PAD  
**Well:** NBU 1021-29O1CS  
**Wellbore:** OH  
**Design:** OH

**Local Co-ordinate Reference:** Well NBU 1021-29O1CS  
**TVD Reference:** GL 5253' & KB 25' @ 5278.00ft (HP 311)  
**MD Reference:** GL 5253' & KB 25' @ 5278.00ft (HP 311)  
**North Reference:** True  
**Survey Calculation Method:** Minimum Curvature  
**Database:** EDM5000-RobertS-Local

**Survey**

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
791.00	7.69	213.25	788.92	-38.11	-17.14	14,498,921.25	2,042,271.59	39° 54' 59.959 N	109° 34' 0.732 W
881.00	8.63	221.75	878.01	-48.18	-24.94	14,498,911.05	2,042,263.96	39° 54' 59.860 N	109° 34' 0.833 W
971.00	9.81	227.62	966.85	-58.39	-35.10	14,498,900.68	2,042,253.96	39° 54' 59.759 N	109° 34' 0.963 W
1,061.00	11.50	234.50	1,055.29	-68.77	-48.07	14,498,890.10	2,042,241.16	39° 54' 59.656 N	109° 34' 1.129 W
1,151.00	13.44	234.37	1,143.17	-80.07	-63.88	14,498,878.54	2,042,225.54	39° 54' 59.544 N	109° 34' 1.332 W
1,241.00	15.48	233.34	1,230.31	-93.34	-82.01	14,498,864.99	2,042,207.62	39° 54' 59.413 N	109° 34' 1.565 W
1,331.00	16.69	232.62	1,316.79	-108.36	-101.92	14,498,849.65	2,042,187.95	39° 54' 59.265 N	109° 34' 1.821 W
1,421.00	18.94	232.62	1,402.47	-125.07	-123.80	14,498,832.59	2,042,166.35	39° 54' 59.100 N	109° 34' 2.102 W
1,511.00	20.31	232.87	1,487.24	-143.37	-147.86	14,498,813.91	2,042,142.58	39° 54' 58.919 N	109° 34' 2.410 W
1,601.00	19.63	231.25	1,571.82	-162.26	-172.10	14,498,794.63	2,042,118.65	39° 54' 58.732 N	109° 34' 2.722 W
1,691.00	19.75	231.50	1,656.56	-181.19	-195.79	14,498,775.32	2,042,095.26	39° 54' 58.545 N	109° 34' 3.026 W
1,781.00	19.56	231.75	1,741.32	-199.98	-219.52	14,498,756.15	2,042,071.84	39° 54' 58.359 N	109° 34' 3.330 W
1,871.00	20.25	231.50	1,825.94	-219.01	-243.55	14,498,736.75	2,042,048.12	39° 54' 58.171 N	109° 34' 3.639 W
1,961.00	21.39	230.75	1,910.06	-239.09	-268.44	14,498,716.27	2,042,023.55	39° 54' 57.973 N	109° 34' 3.958 W
2,051.00	22.38	230.37	1,993.58	-260.40	-294.35	14,498,694.54	2,041,997.99	39° 54' 57.762 N	109° 34' 4.291 W
2,121.00	22.11	229.75	2,058.37	-277.41	-314.67	14,498,677.21	2,041,977.95	39° 54' 57.594 N	109° 34' 4.552 W
2,181.00	21.88	229.22	2,114.00	-292.01	-331.75	14,498,662.34	2,041,961.10	39° 54' 57.450 N	109° 34' 4.771 W
<b>LAST WFT MWD SURFACE SURVEY</b>									
2,200.00	21.98	227.54	2,131.62	-296.72	-337.06	14,498,657.54	2,041,955.87	39° 54' 57.403 N	109° 34' 4.839 W
<b>FIRST SDI MWD PRODUCTION SURVEY</b>									
2,294.00	22.77	231.40	2,218.55	-319.95	-364.25	14,498,633.88	2,041,929.05	39° 54' 57.173 N	109° 34' 5.188 W
2,389.00	25.15	236.68	2,305.37	-342.51	-395.50	14,498,610.82	2,041,898.17	39° 54' 56.950 N	109° 34' 5.589 W
2,483.00	24.89	239.05	2,390.55	-363.66	-429.15	14,498,589.13	2,041,864.86	39° 54' 56.741 N	109° 34' 6.021 W
2,577.00	25.50	240.02	2,475.61	-383.94	-463.65	14,498,568.30	2,041,830.70	39° 54' 56.541 N	109° 34' 6.464 W
2,672.00	26.64	238.87	2,560.94	-405.17	-499.59	14,498,546.49	2,041,795.10	39° 54' 56.331 N	109° 34' 6.925 W
2,766.00	25.15	230.52	2,645.53	-428.78	-533.06	14,498,522.35	2,041,762.01	39° 54' 56.098 N	109° 34' 7.355 W
2,860.00	26.05	226.71	2,730.31	-455.63	-563.51	14,498,495.01	2,041,732.00	39° 54' 55.832 N	109° 34' 7.746 W
2,955.00	22.60	228.41	2,816.86	-482.06	-592.35	14,498,468.13	2,041,703.59	39° 54' 55.571 N	109° 34' 8.116 W
3,049.00	22.25	226.74	2,903.75	-506.25	-618.82	14,498,443.52	2,041,677.51	39° 54' 55.332 N	109° 34' 8.456 W
3,143.00	23.21	233.78	2,990.47	-529.39	-646.73	14,498,419.93	2,041,649.97	39° 54' 55.103 N	109° 34' 8.814 W
3,238.00	21.02	231.84	3,078.47	-550.98	-675.23	14,498,397.88	2,041,621.82	39° 54' 54.890 N	109° 34' 9.180 W
3,332.00	22.95	232.11	3,165.64	-572.66	-702.95	14,498,375.77	2,041,594.45	39° 54' 54.675 N	109° 34' 9.536 W
3,426.00	21.10	227.54	3,252.78	-595.34	-729.90	14,498,352.65	2,041,567.87	39° 54' 54.451 N	109° 34' 9.882 W
3,521.00	19.79	227.80	3,341.79	-617.68	-754.43	14,498,329.92	2,041,543.70	39° 54' 54.230 N	109° 34' 10.196 W
3,615.00	19.26	236.41	3,430.40	-636.96	-779.14	14,498,310.25	2,041,519.31	39° 54' 54.040 N	109° 34' 10.514 W
3,709.00	20.31	234.39	3,518.86	-655.03	-805.32	14,498,291.76	2,041,493.42	39° 54' 53.861 N	109° 34' 10.850 W
3,804.00	19.79	232.55	3,608.10	-674.41	-831.49	14,498,271.96	2,041,467.56	39° 54' 53.669 N	109° 34' 11.186 W
3,898.00	22.25	229.47	3,695.84	-695.66	-857.66	14,498,250.30	2,041,441.74	39° 54' 53.459 N	109° 34' 11.521 W
3,993.00	23.39	234.13	3,783.41	-718.40	-886.61	14,498,227.10	2,041,413.16	39° 54' 53.235 N	109° 34' 11.893 W
4,087.00	22.25	238.43	3,870.06	-738.65	-916.90	14,498,206.36	2,041,383.20	39° 54' 53.034 N	109° 34' 12.282 W
4,181.00	21.90	240.37	3,957.17	-756.63	-947.30	14,498,187.89	2,041,353.09	39° 54' 52.857 N	109° 34' 12.672 W
4,276.00	22.16	238.87	4,045.23	-774.65	-978.04	14,498,169.38	2,041,322.65	39° 54' 52.679 N	109° 34' 13.067 W
4,370.00	22.42	236.32	4,132.21	-793.76	-1,008.13	14,498,149.79	2,041,292.87	39° 54' 52.490 N	109° 34' 13.453 W
4,464.00	22.16	232.72	4,219.19	-814.44	-1,037.15	14,498,128.65	2,041,264.18	39° 54' 52.285 N	109° 34' 13.825 W
4,559.00	22.86	228.57	4,306.96	-837.98	-1,064.81	14,498,104.66	2,041,236.90	39° 54' 52.052 N	109° 34' 14.180 W
4,653.00	24.18	226.13	4,393.15	-863.88	-1,091.95	14,498,078.34	2,041,210.18	39° 54' 51.797 N	109° 34' 14.529 W
4,748.00	21.19	225.69	4,480.79	-889.36	-1,118.27	14,498,052.44	2,041,184.27	39° 54' 51.545 N	109° 34' 14.867 W
4,842.00	21.63	231.84	4,568.32	-911.94	-1,144.05	14,498,029.45	2,041,158.86	39° 54' 51.321 N	109° 34' 15.197 W
4,936.00	22.86	241.86	4,655.35	-931.26	-1,173.79	14,498,009.65	2,041,129.44	39° 54' 51.130 N	109° 34' 15.579 W
5,031.00	22.07	243.09	4,743.14	-948.04	-1,205.98	14,497,992.36	2,041,097.52	39° 54' 50.965 N	109° 34' 15.992 W
5,125.00	20.05	240.72	4,830.86	-963.91	-1,235.78	14,497,976.00	2,041,067.98	39° 54' 50.808 N	109° 34' 16.375 W
5,219.00	19.26	238.96	4,919.38	-979.79	-1,263.12	14,497,959.69	2,041,040.89	39° 54' 50.651 N	109° 34' 16.726 W
5,313.00	17.15	236.50	5,008.67	-995.44	-1,287.96	14,497,943.65	2,041,016.31	39° 54' 50.496 N	109° 34' 17.045 W
5,408.00	16.80	230.26	5,099.54	-1,011.94	-1,310.20	14,497,926.79	2,040,994.34	39° 54' 50.333 N	109° 34' 17.330 W
5,502.00	14.95	228.77	5,189.95	-1,028.62	-1,329.77	14,497,909.80	2,040,975.04	39° 54' 50.168 N	109° 34' 17.581 W

**Company:** US ROCKIES REGION PLANNING  
**Project:** UTAH - UTM (feet), NAD27, Zone 12N  
**Site:** NBU 1021-29I PAD  
**Well:** NBU 1021-29O1CS  
**Wellbore:** OH  
**Design:** OH

**Local Co-ordinate Reference:** Well NBU 1021-29O1CS  
**TVD Reference:** GL 5253' & KB 25' @ 5278.00ft (HP 311)  
**MD Reference:** GL 5253' & KB 25' @ 5278.00ft (HP 311)  
**North Reference:** True  
**Survey Calculation Method:** Minimum Curvature  
**Database:** EDM5000-RobertS-Local

**Survey**

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
5,596.00	13.54	226.04	5,281.06	-1,044.25	-1,346.81	14,497,893.90	2,040,958.25	39° 54' 50.013 N	109° 34' 17.800 W
5,690.00	11.52	227.80	5,372.82	-1,058.20	-1,361.69	14,497,879.71	2,040,943.60	39° 54' 49.876 N	109° 34' 17.991 W
5,785.00	9.32	224.20	5,466.25	-1,070.09	-1,374.08	14,497,867.63	2,040,931.40	39° 54' 49.758 N	109° 34' 18.150 W
5,879.00	8.35	222.35	5,559.13	-1,080.59	-1,383.98	14,497,856.97	2,040,921.67	39° 54' 49.654 N	109° 34' 18.277 W
5,974.00	7.65	221.73	5,653.21	-1,090.40	-1,392.84	14,497,847.01	2,040,912.97	39° 54' 49.557 N	109° 34' 18.391 W
6,068.00	6.40	227.44	5,746.50	-1,098.82	-1,400.86	14,497,838.67	2,040,905.08	39° 54' 49.476 N	109° 34' 18.494 W
6,163.00	5.28	213.82	5,841.01	-1,105.83	-1,407.20	14,497,831.36	2,040,898.86	39° 54' 49.405 N	109° 34' 18.575 W
6,257.00	3.96	223.14	5,934.70	-1,111.79	-1,411.82	14,497,825.32	2,040,894.33	39° 54' 49.346 N	109° 34' 18.634 W
6,351.00	2.81	231.84	6,028.54	-1,115.58	-1,415.85	14,497,821.46	2,040,890.36	39° 54' 49.308 N	109° 34' 18.686 W
6,446.00	2.37	211.36	6,123.44	-1,118.70	-1,418.71	14,497,818.30	2,040,887.56	39° 54' 49.277 N	109° 34' 18.723 W
6,540.00	1.41	222.88	6,217.39	-1,121.21	-1,420.51	14,497,815.77	2,040,885.80	39° 54' 49.253 N	109° 34' 18.746 W
6,635.00	1.41	207.41	6,312.36	-1,123.10	-1,421.84	14,497,813.85	2,040,884.50	39° 54' 49.234 N	109° 34' 18.763 W
6,729.00	1.49	205.12	6,406.33	-1,125.24	-1,422.89	14,497,811.70	2,040,883.48	39° 54' 49.213 N	109° 34' 18.776 W
6,823.00	0.62	258.82	6,500.32	-1,126.44	-1,423.91	14,497,810.48	2,040,882.48	39° 54' 49.201 N	109° 34' 18.790 W
6,918.00	0.79	200.99	6,595.31	-1,127.15	-1,424.65	14,497,809.76	2,040,881.76	39° 54' 49.194 N	109° 34' 18.799 W
7,012.00	0.97	200.99	6,689.30	-1,128.50	-1,425.16	14,497,808.40	2,040,881.26	39° 54' 49.181 N	109° 34' 18.806 W
7,107.00	0.97	200.73	6,784.29	-1,130.00	-1,425.74	14,497,806.89	2,040,880.71	39° 54' 49.166 N	109° 34' 18.813 W
7,201.00	0.97	189.04	6,878.27	-1,131.53	-1,426.14	14,497,805.35	2,040,880.33	39° 54' 49.151 N	109° 34' 18.818 W
7,295.00	1.32	173.31	6,972.25	-1,133.39	-1,426.14	14,497,803.49	2,040,880.36	39° 54' 49.132 N	109° 34' 18.818 W
7,390.00	1.49	171.55	7,067.23	-1,135.70	-1,425.83	14,497,801.19	2,040,880.71	39° 54' 49.109 N	109° 34' 18.814 W
7,484.00	1.49	166.63	7,161.19	-1,138.10	-1,425.37	14,497,798.80	2,040,881.21	39° 54' 49.086 N	109° 34' 18.808 W
7,578.00	0.75	121.93	7,255.18	-1,139.61	-1,424.57	14,497,797.30	2,040,882.04	39° 54' 49.071 N	109° 34' 18.798 W
7,673.00	0.97	140.96	7,350.17	-1,140.57	-1,423.53	14,497,796.36	2,040,883.09	39° 54' 49.061 N	109° 34' 18.785 W
7,767.00	1.41	143.86	7,444.15	-1,142.12	-1,422.35	14,497,794.83	2,040,884.29	39° 54' 49.046 N	109° 34' 18.770 W
7,862.00	1.41	145.62	7,539.12	-1,144.03	-1,421.00	14,497,792.94	2,040,885.67	39° 54' 49.027 N	109° 34' 18.752 W
7,956.00	0.46	350.67	7,633.11	-1,144.61	-1,420.41	14,497,792.37	2,040,886.27	39° 54' 49.021 N	109° 34' 18.745 W
8,050.00	1.04	352.86	7,727.10	-1,143.39	-1,420.57	14,497,793.58	2,040,886.09	39° 54' 49.033 N	109° 34' 18.747 W
8,145.00	0.53	351.29	7,822.09	-1,142.10	-1,420.75	14,497,794.87	2,040,885.89	39° 54' 49.046 N	109° 34' 18.749 W
8,239.00	0.53	264.27	7,916.09	-1,141.72	-1,421.25	14,497,795.25	2,040,885.39	39° 54' 49.050 N	109° 34' 18.755 W
8,333.00	0.26	341.62	8,010.09	-1,141.56	-1,421.75	14,497,795.40	2,040,884.89	39° 54' 49.052 N	109° 34' 18.762 W
8,428.00	0.35	326.24	8,105.09	-1,141.11	-1,421.98	14,497,795.84	2,040,884.65	39° 54' 49.056 N	109° 34' 18.765 W
8,522.00	0.26	258.47	8,199.09	-1,140.91	-1,422.34	14,497,796.03	2,040,884.28	39° 54' 49.058 N	109° 34' 18.769 W
8,616.00	0.18	236.24	8,293.08	-1,141.04	-1,422.68	14,497,795.90	2,040,883.95	39° 54' 49.057 N	109° 34' 18.774 W
8,711.00	0.44	177.26	8,388.08	-1,141.49	-1,422.78	14,497,795.45	2,040,883.85	39° 54' 49.052 N	109° 34' 18.775 W
8,805.00	0.79	171.46	8,482.08	-1,142.49	-1,422.67	14,497,794.45	2,040,883.98	39° 54' 49.042 N	109° 34' 18.774 W
8,899.00	0.70	175.77	8,576.07	-1,143.70	-1,422.53	14,497,793.24	2,040,884.14	39° 54' 49.030 N	109° 34' 18.772 W
8,994.00	0.70	152.92	8,671.06	-1,144.80	-1,422.22	14,497,792.15	2,040,884.46	39° 54' 49.020 N	109° 34' 18.768 W
<b>LAST SDI MWD PRODUCTION SURVEY</b>									
9,570.00	1.60	107.10	9,246.95	-1,150.29	-1,412.94	14,497,786.81	2,040,893.84	39° 54' 48.965 N	109° 34' 18.649 W
<b>FIRST ANADARKO SURVEY</b>									
9,600.00	1.60	107.10	9,276.94	-1,150.54	-1,412.13	14,497,786.57	2,040,894.64	39° 54' 48.963 N	109° 34' 18.638 W
<b>ANADARKO PROJECTION TO TD</b>									



<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well NBU 1021-29O1CS
<b>Project:</b>	UTAH - UTM (feet), NAD27, Zone 12N	<b>TVD Reference:</b>	GL 5253' & KB 25' @ 5278.00ft (HP 311)
<b>Site:</b>	NBU 1021-29I PAD	<b>MD Reference:</b>	GL 5253' & KB 25' @ 5278.00ft (HP 311)
<b>Well:</b>	NBU 1021-29O1CS	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	OH	<b>Database:</b>	EDM5000-RobertS-Local

**Design Annotations**

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
168.00	168.00	0.27	-0.21	FIRST WFT MWD SURFACE SURVEY
2,181.00	2,114.00	-292.01	-331.75	LAST WFT MWD SURFACE SURVEY
2,200.00	2,131.62	-296.72	-337.06	FIRST SDI MWD PRODUCTION SURVEY
8,994.00	8,671.06	-1,144.80	-1,422.22	LAST SDI MWD PRODUCTION SURVEY
9,570.00	9,246.95	-1,150.29	-1,412.94	FIRST ANADARKO SURVEY
9,600.00	9,276.94	-1,150.54	-1,412.13	ANADARKO PROJECTION TO TD

Checked By: _____	Approved By: _____	Date: _____
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